AD_____

Award Number: W81XWH-11-2-0120

TITLE: Characterizing Resilience and Growth Among Soldiers:
 A Trajectory Study

PRINCIPAL INVESTIGATOR: Nansook Park, Ph.D.

CONTRACTING ORGANIZATION: University of Michigan,
                                              Ann Arbor, MI 48109

REPORT DATE: April 2012

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
                      Fort Detrick, Maryland 21702-5012

1. REPORT DATE April 2012	2. REPORT TYPE Annual	3. DATES COVERED 15 March 2011- 14 March 2012
4. TITLE AND SUBTITLE Characterizing Resilience and Growth Among Soldiers: A Trajectory Study		**5a. CONTRACT NUMBER**
		5b. GRANT NUMBER W81XWH-11-2-0120
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) Nansook Park Christopher Peterson e-mail: nspak@umich.edu		**5d. PROJECT NUMBER**
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Michigan Ann Arbor, MI 48103		**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012		**10. SPONSOR/MONITOR'S ACRONYM(S)**
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

This study is a longitudinal follow-up of Soldiers who completed surveys before, during, and after their deployment to Iraq to examine the effects of deployment in the longer term using both survey and interview methods. A comprehensive set of psychosocial characteristics—healthy and unhealthy—were assessed. Further data collection is ongoing. The specific purpose of the study is to measure resilience and growth in terms of actual trajectories of functioning over time and to identify protective factors and assets predicting resilience (relatively rapid return to healthy functioning following adversity) as well as factors predicting growth (improved functioning).

Achievements during the first year of the project include securing IRB approvals, developing survey package, completing pilot testing of online survey, upgrading database for contact information for participant follow-up data collection, conducting preliminary data analyses of existing first three waves of data to inform follow-up data collection, and starting data collection through online and mail-in survey methods.

Preliminary data analyses with existing three waves data found that during deployment, Soldiers frequently experienced adverse events and their mental well-being decreased. However, immediately post-deployment, Soldiers on average had the similar level of psychological well-being as before deployment, evidence of resilience. Factors predicting relative well-being immediately following deployment included positive affect, and optimism; unit cohesion and trust; social and family support; and life meaning.

15. SUBJECT TERMS
Resilience, growth, Soldiers, well-being, longitudinal, Psychological and Social Assets

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON USAMRMC
a. REPORT U	**b. ABSTRACT** U	**c. THIS PAGE** U	UU	86	**19b. TELEPHONE NUMBER** *(include area code)*

Table of Contents

Introduction

Soldiers face ever-growing challenges due to repeated deployments to combat. While deployment-related stress may lead to problems, many Soldiers maintain relatively healthy functioning. It is critical to understand the factors related to healthy and unhealthy functioning.

This study is a continuation of an on- going longitudinal investigation of US Soldiers. More than 550 Soldiers in the 4th Infantry Division of the US Army completed surveys about psychosocial well-being before (Time 1: February, 2008), during (Time 2: July, 2008), and immediately after (Time 3: May, 2009) deployment to Iraq. Current grant funding supports for the fourth wave of data collection and data analyses of entire waves. It involves multiple waves of data collection and an assessment of both positive and negative functioning in various life domains using survey and interview methods.

The specific purpose of the study is to measure resilience and growth in terms of actual trajectories of psychological functioning over time and then to investigate the psychological, social, and organizational protective factors and assets that predict resilience (relatively rapid return to healthy functioning following adversity) as well as the factors that predict growth (improved psychological functioning following adversity). Resulting from this effort, which relies on quantitative and qualitative data, will be a comprehensive characterization of resilient Soldiers, as well as those who may grow following adversity. The important benefit of the characterizations that emerge will be the identification of specific intervention targets for resilience and growth training programs in the military that are conceptually-grounded and empirically-informed.

Body

At the initial stage of our project, our main tasks were establishing and preparing research as it was described in our approved statement of work (SOW). IRB approval at the University of Michigan and HRPO took significantly longer than what we originally expected. As a result, the start of data collection was delayed. To accommodate new timeline, we revised the original statement of work, and this revision was approved. The resulting changes we have made in our revised SOW include the starting and finishing dates for data collections and other associated activities in each study period. The project ending date has not been changed. We accomplished all tasks outlined in our approved revised SOW. The approved revised statement of work is provided in Appendix.

Details of research accomplishment during the past one year funding period are following: 1) secured and set up research facility with secure database storage, 2) hired research assistants and provided training, 3) developed data management system and set up and clean up computer database with previous three waves of data, 4) completed data entry for qualitative data from previous waves of collected data, 5) reviewed recent literature to inform to develop survey measures for new data collection, 6) conducted preliminary data analyses of existing first three waves of data to inform follow-up data collection, 7) secured University of Michigan IRB and

HRPO approval, 8) created the survey package for mail-in and online new data collection (See Appendix), 9) attended data analyses workshops on longitudinal data analyses and data management, 10) presented primary findings at MOMRP annual science review meeting (See appendix for presentation slides), 11) set up online survey website using Qualtrics for data collection, 12) completed pilot testing online survey and necessary revision, 13) updated and revised database of contact information for study participants, 14) began initial followup data collection by Internet and regular mail. Using existing contact information, e-mail messages to participants informing them of followup data collection were sent. One hundred survey package were prepared and mailed to participants as a initial attempt for data collection to those who did not respond to e-mail contact.

During the past few years, over 550 Soldiers in the 4th Infantry Division study completed surveys before (February, 2008), during (July, 2008), and after (May, 2009) their deployment to Iraq. A comprehensive set of psychosocial characteristics—healthy and unhealthy—were assessed. Also assessed was the experience of potentially-traumatic events, such as threats to one's own life; injuries; loss of friends and comrades in combat; degree of combat exposure; and marital problems. A fourth wave of data collection is now taking place.

Here is a summary of major findings from preliminary analyses of the first three waves of data. During deployment, Soldiers frequently experienced adverse events. However, immediately post-deployment, Soldiers on average had about the same psychological well-being as before deployment, on the face of it evidence of their resilience. The factors that predicted *relative* well-being immediately following deployment included those emphasized in the Comprehensive Soldier Fitness Program: psychological fitness (e.g., positive affect, optimism); social fitness (e.g., unit cohesion and trust, social support); family fitness (e.g., family support); and spiritual fitness (e.g., orientation to meaning, meaning-making) (Peterson, Park & Castro, 2011). These same factors also predicted reports of growth following deployment, although usually less robustly. Also predicting reported growth following deployment was good leadership. These findings are encouraging, substantively because they are coherent and procedurally because they verify the usefulness of the survey procedure used—i.e., Soldiers responded to the questions posed in thoughtful ways.

Further analyses are planned for the second year of the project, especially of responses to open-ended questions, which will flesh out the quantitative results. And subsequent waves of data will shed light on the more enduring effects—positive and negative—of deployment to a combat zone.

Preliminary Findings

Survey data from three waves before (February, 2008), during (July, 2008), and after (May, 2009) their deployment to Iraq has been entered, cleaned and merged. Details of preliminary data analyses are following.

At the first wave of data collection, 748 Soldiers completed measures. Almost all were males 98%. Their average age was 25 years, and on average, they had served in the Army for 4.4 years.

Participants were for the most part distributed across the enlisted ranks—31% Privates, 29% Specialists, and 30% Sergeants—and across ethnicities—65% White, 14% Latino, and 12% African American. About 60% of participants were married, and on average, participants had one child. All had high school degrees or the equivalent, and 49% had some college credits.
At the second wave of data collection, 551 (74%) of the original participants again completed surveys, and at the third wave, 616 (83%) of the original participants completed surveys. So, there was some attrition across waves of data collection but not a great deal.

Here we look at psychological outcomes at Wave 3 as a function of predictors assessed at Wave 2, controlling for baseline measures of well-being at Wave 1. There are other potential predictors assessed at Waves 1 and 3, but these are not on focus here because the present analyses made full use of the study's longitudinal design and clearly separated the assessment of outcomes (Wave 3), predictors (Wave 2), and covariates (Wave 1). Several questions were posed.

Questionnaires were either created for the current study or derived from existing measures: SWLS (Diener, Emmons, Larsen, & Griffin, 1985); PANAS (Watson, Clark, & Tellegen, 1988); Brief Cope (Carver, 1997); Meaning in Life Scale (Steger, Frazier, Oishi, & Kaler, 2006.; OTH (Peterson, Park, & Seligman, 2005); PSYCCAP (Luthans, Avolio, Avey, & Norman, 2007); Hardiness (Bartone, 2007); Big Five (Goldberg, 1992); Mattering (Taylor & Turner, 2001); Short-Form Mississippi PTSD (Fontana & Rosenheck, 1994); CES-D (Radloff, 1977); PTGI (Tedeschi & Calhoun, 1996); Authentic Leadership (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008); MLQ (Bass & Avolio, 1990).

First, how frequently are Soldiers exposed to potentially traumatic events?

Looking at Wave 3 results, which are cumulative, it is obvious that the typical Soldier in our sample was frequently exposed to potentially traumatic events (see Table 1).

Table 2
Exposure to Potentially Traumatic Events at Wave 3

Event	Average / Frequency
Months in combat zone	19.8
Number of deployments	1.7
Direct fire engagements	14.8
Indirect fire engagements	52.5
IED attacks	5.3
Times exposed to US/Coalition killed/wounded	3.8
Times exposed to enemy killed/wounded	5.8
Killed anyone?	37%
Lost a close friend/comrade in combat?	76%

Second, are there "main effects" (i.e., typical responses) of deployment?

To answer this question, we looked at mean scores of Soldiers at the three waves for

satisfaction with life; depressive symptoms; post-traumatic disorder symptoms; positive affect; negative affect; and post-traumatic growth. There were no striking differences over waves Table 3). Said more positively, Soldiers on average returned from deployment not appreciably different in terms of their psychological well-being before deployment, evidence for their resilience. Of course, some Soldiers "improved" on measures from Wave 1 before deployment to Wave 3 immediately following deployment, and others did not, as would be expected.

Table 3
Well-Being Across Waves

Measure	Wave 1	Wave 2	Wave 3	Improvement*
Life satisfaction	4.18	4.26	4.39	53%
Depression	16.1	18.9	20.2	27%
PTSD	22.5	22.2	23.6	37%
Positive affect	2.39	1.90	2.40	46%
Negative affect	1.64	1.64	1.77	44%
Growth	53.2	42.6	50.4	46%

*Percent of sample improved from Wave 1 to Wave 3.

A comment about "growth" is in order. The Post-Traumatic Growth Inventory (PTGI) was completed at each of the three waves, and average scores were computed and are reported in Table 3. One might think that growth would be continual and cumulative, but scores actually declined, and only 46% of the sample reported more growth at Wave 3 than at Wave 1. Caution about the interpretation of the PTGI is underscored.

Third, what predicts more-or-less well-being after deployment?

Despite the absence of a typical response to deployment, it is still possible to look at factors that predict *relative* well-being after deployment. "Well-being" was measured by satisfaction with life, low depressive symptoms, and low post-traumatic disorder symptoms. Analyses predicted changes in well-being from Wave 1 to Wave 3 by controlling for the corresponding well-being score at Wave 1 as well as age and gender of Soldiers and intensity of combat exposure[1], and then seeing which factors during deployment Wave 2 predicted changes in well-being at Wave 3—following deployment.

Table 4
Wave 2 Predictors of Well-Being at Wave 3

	Outcome Change from Wave 1 to Wave 3 Standardized Beta Coefficient*		
Wave 2 Predictor	Life satisfaction	Depression	PTSD

Emotion

Positive affect	.18 (p < .001)	-.22 (p < .001)	-.13 (p < .002)
Negative affect	-.14 (p < .001)	.29 (p < .001)	.28 (p < .001)
Orientation to pleasure	.06 (ns)	-.09 (p < .04)	-.04 (ns)
Orientation to engagement	.10 (p < .03)	-.13 (p < .004	-.13 p < .001)

Meaning

Orientation to meaning	.18 (p < .001)	-.14 (p < .001)	-.11 (p < .007)
Meaning making	.15 (p < .001)	-.12 (p < .005)	-.15 (p < .001)
Presence of meaning	.20 (p < .001)	-.19 (p < .001)	-.12 (p < .003)
Search for meaning	-.03 (ns)	.03 (ns)	-.04 (ns)

Hope / optimism

Efficacy	.16 (p < .001)	-.19 (p < .001)	-.12 (p < .004)
Hope / perseverance	.19 (p < .001)	-.16 (p < .001)	-.10 (p < .02)
Resilience	.17 (p < .001)	-.17 (p < .001)	-.10 (p < .02)
Optimism	.22 (p < .001)	-.16 (p < .001)	-.10 (p < .03)
Positive expectations about rest of deployment	.15 (p < .001)	-.20 (p < .001)	-.25 (p < .001)

Coping

Keeping negative emotions to oneself	.00 (ns)	.01 (ns)	-.05 (ns)
Expressing positive emotions	.13 (p < .002)	-.14 (p < .001)	-.10 (p < .02)
Cognitive reappraisal	.15 (p < .001)	-.16 (p < .001)	-.14 (p < .001)
Problem-focused coping	.11 (p < .005)	-.15 (p < .001)	-.17 (p < .001)
Flexibility	.10 (p < .01)	-.17 (p < .001)	-.17 (p < .001)
Control and acceptance	.12 (p < .002)	-.08 (ns)	-.10 (p < .02)
How well did you handle A stressful situation?	.25 (p < .001	-.15 (p < .001	-.10 (p < .02)

Social

Someone to talk to about difficult experiences	.06 (ns)	-.06 (ns)	.03 (ns)
Social support	.18 (p < .001)	-.17 (p < .001)	-.13 (p < .001)
Family support	.16 (p < .001)	-.18 (p < .001)	-.14 (p < .001)
Frequency of contact with family and friends	.04 (ns)	-.07 (ns)	-.01 (ns)
Unit will take care of family	.09 (p < .05)	-.14 (p < .001)	-.07 (ns)
Team efficacy	.14 (p < .001)	-.10 (p < .03)	-.03 (ns)
Team social cohesion	.09 (p < .03)	-.11 (p < .02)	.00 (ns)
Trusted by leader	.07 (ns)	-.08 (ns)	-.02 (ns)
Leader trust in subordinates	.07 (ns)	-.06 (ns)	-.06 (ns)

Leadership

A. Supervisor transparency	.06 (ns)	-.09 (p < .03)	.00 (ns)

B. Authentic Leadership	.04 (ns)	-.06 (ns)	.00 (ns)
C. MLQ			
Management by exception	.00 (ns)	.00 (ns)	.02 (ns)
Contingent reward	.03 (ns)	-.08 (ns)	-.01 (ns)
Intellectual stimulation	.02 (ns)	-.04 (ns)	.04 (ns)
Individual consideration	.04 (ns)	-.08 (ns)	.02 (ns)
Inspirational leadership	.08 (p < .04)	-.09 (p < .04)	.02 (ns)
Idealized leadership	.06 (ns)	-.06 (ns)	.06 (ns)
Transformational leadership total	.07 (ns)	-.09 (p < .04)	.02 (ns)

*Controlling for Wave 1 outcome, age, gender, and Wave 3 months in a combat zone.

A number of factors, considered one at a time, proved relevant, by far the most robust of which was always well-being before deployment (life satisfaction $\beta = .47$, $p < .001$; depression $\beta = .49$, $p < .001$; PTSD $\beta = .44$, $p < .001$), reprising the familiar finding that how one fares before adversity predicts how one fares after adversity. Other predictive factors included positive affect and negative affect; hope/perseverance, optimism, resilience, and efficacy; positive expectations about deployment; meaning and purpose; engagement in ongoing activities; strategies for coping with stress; social support; family support; team efficacy and cohesion; and trust that the unit would care for one's family.

The way to interpret these results is that these factors predict *relative* well-being after deployment; they do not necessarily mean that Soldiers who are higher with respect to positive affect, optimism, meaning, or social support are flourishing or thriving, just doing better than other Soldiers who are lower.

Not appreciably implicated in these preliminary findings were factors related to Soldier perceptions of leadership. This may be due to the starkness of the preliminary analyses, to the lack of meaningful variation in these factors, or—most interestingly—to something inherent in the contemporary US Army. Further and more sophisticated analyses are of course needed before definitive conclusions are drawn.

To simplify these results and provide a more comprehensive view of the predictors of well-being following deployment, a factor analysis of the significant Wave Two predictors using varimax rotation was computed. Five factors with eigen-values greater than 1.0 were found and were readily interpretable as:
- Factor One   Meaning / Flexibility
- Factor Two   Hope / Optimism / Efficacy
- Factor Three   Unit Trust
- Factor Four   Cheerfulness / Problem-Focused Coping
- Factor Five   Family / Social Support

Note that these factors reflect the domains of interest to the Comprehensive Soldier Fitness CSF Program (Seligman & Matthews, 2011): psychological fitness (Factors Two and Four), social fitness (Factor Three), family fitness (Factor Five), and spiritual fitness (Factor One). The intent of the CSF Program to encourage fitness in each of these domains is plausible.

Overall "well-being" at Wave 1 and at Wave 3 was assessed by equally-weighted composites of satisfaction with life, low depressive symptoms, and low post-traumatic disorder symptoms. Factor scores—statistically independent of one another—were computed for each of the five factors, and their relationship to well-being was ascertained with a path analysis, first regressing the factor scores on Wave 3 well-being, controlling for Wave 1 well-being, age, gender, and months in a combat zone, and then regressing Wave 1 well-being on each factor score, controlling for age, gender, and months in a combat zone.

The resulting path model is shown omitting the effects of age, gender, and months in a combat zone, and significant paths are indicated with an asterisk. Well-being at Wave 1 foreshadowed well-being at Wave 3, directly as well as indirectly through effects on three of the factors: (i) meaning and flexibility; (ii) hope, optimism, and efficacy; and (iii) cheerfulness and problem-focused coping. Although well-being at Wave 1 was related to unit trust, unit trust was not in turn related to well-being at Wave 3, suggesting that trust in one's fellow Soldiers—obviously important in the field—may not have enduring effects on post-deployment psychological well-being. And interestingly, family and social support predicted subsequent well-being but was not a function of initial well-being. Said another way, support was available or not regardless of how a Soldier was faring before deployment.

Figure 1.
Path Analysis of Predictors of Post-Deployment Well-Being. Figures shown are statistically significant (p < .05) standardized β coefficients (see text).
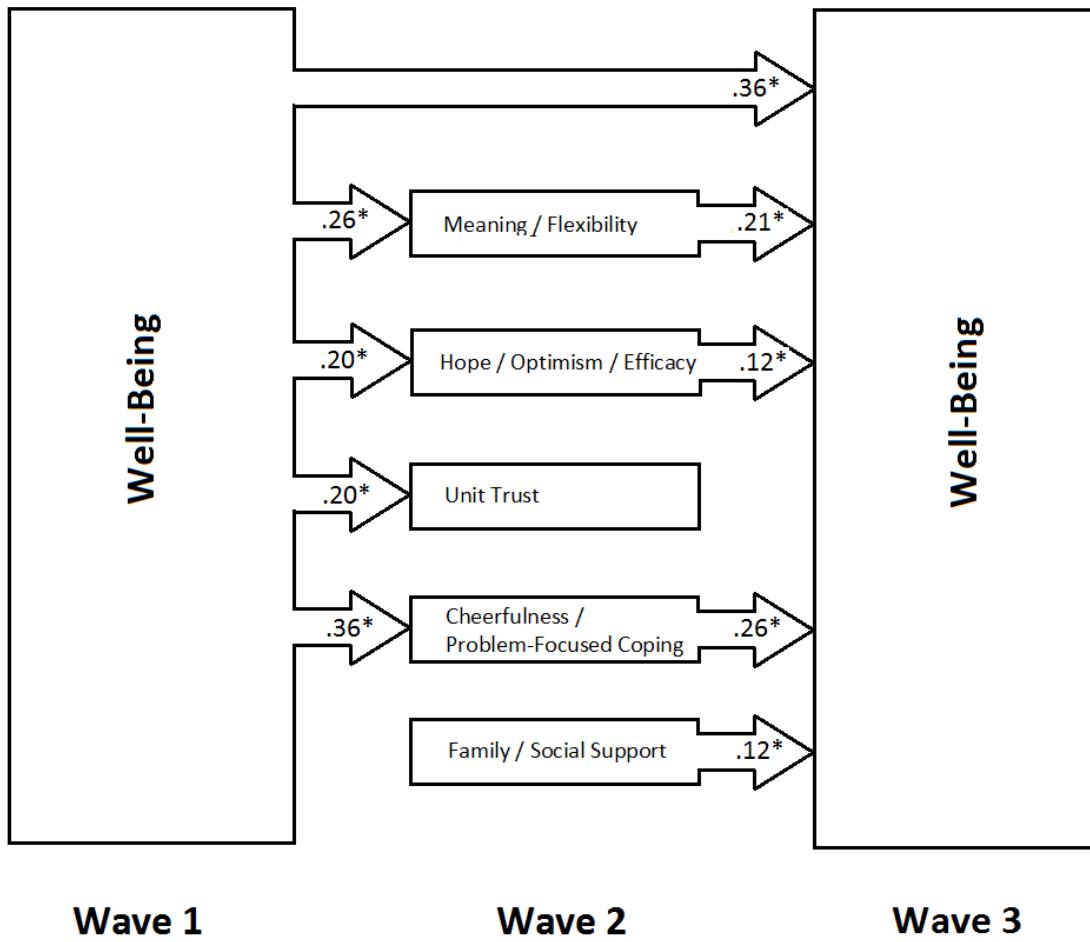
The implications of these results, although preliminary, are straight-forward. In recruiting and especially in deploying Soldiers to combat, the most psychosocially fit individuals should be chosen; they are the ones who fare best following deployment. Moreover, deliberate programs to encourage fitness in one or more psychosocial domains might encourage psychological well-being among Soldiers following combat.

Fourth, what predicts reports of more-or-less post-traumatic growth after deployment?

As mentioned, caution is needed about typical measures of post-traumatic growth following adversity that rely on self-report (Frazier et al., 2009). We nonetheless looked at the factors that predicted higher-versus-lower reports of growth immediately following deployment. We did not look at change scores—simply Wave 3 PTGI scores—controlling for Time 1 composite well-being, age, and gender. These analyses were done with and without the variable of months in a combat zone, given that adversity needs to occur for growth assessment to be meaningful (see Table 5). However, as can be seen, the results were identical. The conclusion does not follow that adversity is unimportant; rather, virtually all of the Soldiers in the present study experienced potentially traumatic events (see Table 1).

Table 5
Wave 2 Predictors of Post-Traumatic Growth at Wave 3

Wave 2 Predictor	Post-Traumatic Growth at Wave 3 Standardized Beta Coefficient*	
	Combat Experience Controlled	Combat Experience Not Controlled
Emotion		
Positive affect	.22 (p < .001)	.23 (p < .001)
Negative affect	.14 (p < .005)	.15 (p < .003)
Orientation to pleasure	.07 (ns)	.06 (ns)
Orientation to engagement	14 (p < .006)	.13 (p < .01)
Meaning		
Orientation to meaning	.24 (p < .001)	.23 (p < .001)
Meaning making	.13 (p < .01)	.13 (p < .01)
Presence of meaning	.22 (p < .001)	.21 (p < .001)
Search for meaning	.15 (p < .001)	.15 (p < .001)
Hope / optimism		
Efficacy	.12 (p < .02)	.12 (p < .03)
Hope / perseverance	.08 (ns)	.08 (ns)
Resilience	.01 (ns)	.01 (ns)
Optimism	.15 (p < .002)	.15 (p < .002)
Positive expectations about rest of deployment	-.02 (ns)	-.01 (ns)
Coping		
Keeping negative emotions to oneself	.03 (ns)	.02 (ns)
Expressing positive emotions	.14 (p < .005)	.15 (p < .002)
Cognitive reappraisal	.13 (p < .01)	.13 (p < .01)
Problem-focused coping	-.01 (ns)	-.01 (ns)
Flexibility	.00 (ns)	.00 (ns)
Control and acceptance	.00 (ns)	.00 (ns)
How well did you handle a stressful situation?	-.01 (ns)	.00 (ns)
Social		
Someone to talk to about difficult experiences	-.06 (ns)	-.05 (ns)
Social support	.19 (p < .001)	.19 (p < .001)
Family support	.11 (p < .03)	.12 (p < .01)

Frequency of contact with family and friends	.06 (ns)	.06 (ns)
Unit will take care of family	.20 (p < .001)	.20 (p < .001)
Team efficacy	.13 (p < .01)	.14 (p < .004)
Team social cohesion	.15 (p < .001)	.16 (p < .001)
Trusted by leader	.08 (ns)	.08 (ns)
Leader trust in subordinates	.07 (ns)	.07 (ns)
Leadership		
A. Supervisor transparency	.07 (ns)	.07 (ns)
B. Authentic Leadership	.06 (ns)	.07 (ns)
C. MLQ		
Management by exception	.12 (p < .01)	.13 (p < .01)
Contingent reward	.12 (p < .01)	.13 (p < .005)
Intellectual stimulation	.10 (p < .03)	.11 (p < .02)
Individual consideration	.09 (ns)	.10 (p < .05)
Inspirational leadership	.10 (p < .04)	.10 (p < .03)
Idealized leadership	.16 (p < .001)	.16 (p < .001)
Transformational leadership Total	.12 (p < .01)	.13 (p < .01)

*Controlling for age, gender, composite, and Wave 1 well-being.

Results were much the same as those just reported for the predictors of changes in well-being immediately following deployment, although usually less robust. Exceptions were the variables reflecting meaning, which were as strongly related to post-deployment growth as to post-deployment psychological well-being. Perhaps growth after adversity at its essence entails making sense of what happened.

Also, perceptions of good leadership were more associated post-deployment growth than with post-deployment well-being. These results suggest that leadership has effects on post-traumatic growth not apparent when the focus is on psychological well-being *per se*. Perhaps good leaders help Soldiers make sense of adversity and thereby grow from the experience.

Although self-reported growth and psychological well-being at Wave 3 were positively associated, the magnitude was surprisingly small (r = .24, p < .001) and even smaller when Wave 1 well-being was controlled (ρ = .20, p < .001).

On the face of it, post-traumatic growth as measured by the PTGI and psychological well-being as measured by life satisfaction and low levels of depression and PTSD are different constructs, a conclusion with theoretical and practical implications (cf. Westphal & Bonanno, 2007). Soldiers may grow from combat yet still be dissatisfied and symptomatic. Indeed, as can be seen in Table 5, positively predicting Wave 3 growth was Wave 2 negative affect (β = .14, p < .005). Conversely, other Soldiers may do psychologically well following combat without the occurrence of post-traumatic growth.

So what do we desire for Soldiers—growth or psychological well-being? If the answer is both, we cannot assume that interventions to enhance the one outcome will have necessary effects on the other, or vice versa.

There have been challenges that have delayed the progress of the proposed project, especially in follow-up (fourth wave) data collection. IRB at University of Michigan took significantly longer than it was expected, which delayed the starting date of our data collection. To accommodate these changes, we submitted a revised SOW, and it was approved by the Army Contracting Officer Representative. The resulting changes we have made in our revised SOW include the starting and finishing dates for data collections and other associated activities in each study period. The project ending date has not been changed. Also, because of the delayed IRB approval and other challenges we have faced, we will collect wave four data for the current funded project. (Originally, we planned to collect wave four data on our own and use the current funding to collect wave five data one year later.) Within the time constraints we now face, this is not possible. However, we do not expect any significant scientific difference with these changes, and the original aims, hypotheses, and data analytic plans of the research remain the same.

We expect challenges in further follow-up data collection. A number of factors contribute to this challenge. There has been a significant time lag since we collected the last wave of data in 2009, which left more than 2 years of lost of contact with participants. Furthermore, there has been a substantial change in the status of participants in the study. Since the last data collection in 2009, a large number of participants have left the military, been redeployed, or relocated and reassigned to different positions. As a result, much of our contact information was outdated. We have faced challenges tracking down each of our potential participants and encouraging them to participate. We are planning to utilize all possible way of contact participants including e-mail, regular mail, and phone calls. Although, it is challenging, we are doing our best and expect to reach our target number of respondents.

Key Research Accomplishments

Achievements during the first year of the project include"
- securing IRB approvals
- developing survey package
- completing pilot testing of online survey
- upgrading database for contact information for participant follow-up data collection
- conducting preliminary data analyses of existing first three waves of data to inform follow-up data collection
- starting data collection through online and mail-in survey methods.

Here are the major findings from preliminary analyses of the three waves of data:
- During deployment, Soldiers frequently experienced adverse events.
- During deployment, Soldiers' mental health was decreased on average.
- Immediately post-deployment, Soldiers on average had similar levels of psychological well-being as before deployment, evidence of their resilience.

- The most important contributor for Soldier well-being, immediately after deployment was well-being before deployment.
- The factors that predicted *relative* well-being immediately following deployment included those emphasized in the Comprehensive Soldier Fitness (CSF) Program: psychological fitness (e.g., high positive affect, low negative affect, optimism, active coping, self-efficacy, emotion regulation, engagement in life,); social fitness (e.g., unit cohesion and trust, social support, trust that the military unit would take care of one's family); family fitness (e.g., family support); and spiritual fitness (e.g., having life meaning, meaning-making).
- These same factors also predicted reports of growth following deployment, usually less robustly.
- Also predicting reports of growth following deployment was good leadership.

Reportable Outcomes

Publications

Park, N. (in press). Adversity, resilience, and thriving: A positive psychology perspective on research and practices. In R.A. McMackin, T. M. Keane, E. Newman, & J. M. Fogler (Eds.), *Toward an integrated approach to trauma focused therapy: Placing evidence-based interventions in an expanded psychological context.* Washington, DC: American Psychological Association. (See Appendix)

Presentations

Park, N. & Peterson, C. (2011, April). *Resilience and growth from the perspective of positive psychology: Practice.* Invited workshop. McGill University, Montreal, Canada.

Park, N. & Peterson, C. (2011, April). *Resilience and growth from the perspective of positive psychology: Theory and research.* Invited talk. McGill University, Montreal, Canada.

Park, N. (2011, May). *Building and sustaining healthy, resilient, productive workforce and community: A positive psychology perspective.* Keynote speaker. 84th Japan Association of Occupational Health Annual Conference. Tokyo, Japan.

Park, N. & Peterson, C. (2011, July). *Characterizing resilience and growth among soldiers: A trajectory study.* Military Operational Medicine Research Program Resilience IPR Meeting. Fort Detrick, MD.

Park, N. (2011, November). *Military children: Strengths and challenges during peace and war.* Invited speaker. Michigan Summit on Military Families: Research and Best Practices. Military Support Programs and Networks. University of Michigan Depression Center, Ann Arbor, MI.

Park, N. & Peterson, C. (2012, February). *Positive Psychology: Research and Practice.* Invited workshop. Correctional Service Canada, Kingston, Ontario, Canada.

<u>Honors</u>
Jennifer Sun who has been trained as a research assistant and supported by this grant has been admitted to a combined MD and Psychology PhD graduate program at University of Michigan with full scholarship, starting Fall 2012.

Conclusions

The implications of these results, although preliminary, are straight-forward. In recruiting and especially in deploying Soldiers to combat, the most psychosocially fit individuals should be chosen; they are the ones who fare best following deployment. Moreover, deliberate programs to encourage fitness in one or more psychosocial domains might encourage psychological well-being among Soldiers following combat.

Emerging from future wave of data collection and data analyses will provide a comprehensive characterization of resilient Soldiers, as well as a characterization of those who grow following adversity. We will learn whether the protective factors and assets for resilience the same as or different from those for growth. We will also learn whether the most important protective factors and assets are in place before Soldiers join the military or established during basic training, or indeed during actual deployment.

The important benefit of the characterizations that emerge will be to provide specific intervention targets for resilience and growth training and educational programs in the military that are conceptually-grounded and empirically-informed. Existing resilience programs in the Army can be more efficient, more economical, and more effective if they focus on the most relevant factors that this study will discover. The current study will further contribute to the research field by providing empirical evidence of natural processes of resilience and growth following adversity and how and why such individual differences occur.

References

Bartone, P. T. (2007). Test-retest reliability of the Dispositional Resilience Scale-15, a brief hardiness scale. *Psychological Reports, 101,* 943-944.

Bass, B. M. & Aviolo, B. J. (1990). *Multifactor Leadership Questionnaire.* Palo Alto, CA: Consulting Psychologists Press.

Bowles, S. V., & Bates, M. J. (2010). Military organizations and programs contributing to resilience building. *Military Medicine, 75,* 382-385.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4,* 92-100.

Cornum, R., Matthews, M. D., & Seligman, M. E. P. (2011). Comprehensive Soldier Fitness: Building resilience in a challenging institutional context. *American Psychologist, 66,* 4-9.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49,* 71-75.

Fontana, A., & Rosenheck, R. (1994). A short form of the Mississippi Scale for Measuring Change in Combat-Related PTSD. *Journal of Traumatic Stress, 73,* 407-414.

Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-reported posttraumatic growth reflect genuine positive change? *Psychological Science, 20,* 92-99.

Goldberg, L. R. (1992). The development of markers for the Big-five factor structure. Journal of *Personality and Social Psychology, 59,* 1216–1229

Luthans, F., Avolio, B.J., Avey, J.B., & Norman, S.M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology, 60,* 541–572.

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies, 6,* 25-41.

Peterson, C., Park, N., & Castro, C. A. (2011). Assessment for the U. S. Army Comprehensive Soldier Fitness Program: The Global Assessment Tool. *American Psychologist, 65,* 10-18.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401.

Seligman, M. E. P., & Matthews, M. D. (Guest Eds.) (2011). Comprehensive Soldier Fitness. *American Psychologist, 66,* 1-86.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53,* 80-93.

Taylor, J., & Turner, R. J. (2001). A longitudinal study of the role and significance of mattering to others for depressive symptoms. *Journal of Health and Social Behavior, 42,* 310-325.

Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9,* 455-471.

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management, 34,* 89-126

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063-1070.

Westphal, M., & Bonanno, G. A. (2007). Posttraumatic growth and resilience to trauma: Different sides of the same coin or different coins? *Applied Social Psychology: An International Review, 56,* 417-427.

Appendices

Approved revised-Statement of Work

Survey measures

A copy of Presentation:
Park, N. & Peterson, C. (2011, July). *Characterizing resilience and growth among soldiers: A trajectory study*. Military Operational Medicine Research Program Resilience IPR Meeting. Fort Detrick, MD.

Book Chapter:
Park, N. (in press). Adversity, resilience, and thriving: A positive psychology perspective on research and practices. In R.A. McMackin, T. M. Keane, E. Newman, & J. M. Fogler (Eds.), *Toward an integrated approach to trauma focused therapy: Placing evidence-based interventions in an expanded psychological context.* Washington, DC: American Psychological Association.

Revised- Statement of Work (Approved)

Characterizing Resilience and Growth among Soldiers: A Trajectory Study
Nansook Park & Christopher Peterson

This is the first prospective study to examine resilience and growth simultaneously among Soldiers. It extends an ongoing prospective longitudinal of Soldiers before, during, and after deployment to Iraq. 700+ Soldiers in the 4th Infantry Division have completed surveys measuring a comprehensive set of psychosocial characteristics—healthy and unhealthy. Also assessed has been the experience of potentially-traumatic events.

The current research proposal requests funds for a continuation of follow-up for quantitative and qualitative data collection and analyses in a fourth wave to measure the effect of deployment on psychological and social functioning in the longer term and to examine more comprehensively the trajectories of functioning. The goal of this research is to develop a model of Soldier resilience and growth that will inform United States Army training programs. The study will measure resilience and growth in terms of actual trajectories of psychological functioning over time and then investigate the factors and assets that predict resilience—the relatively rapid return to healthy functioning following adversity—as well as the factors that predict growth following adversity—the display of improved psychological functioning. These data will be analyzed with latent curve modeling, a powerful statistical strategy that allows individual differences in trajectories over time to be described and classified into meaningfully-different groups.

There is only one study site—the University of Michigan—and all tasks will be performed there.

Funding is requested for two and a half years (30 months). Here is the statement of work for this project, described by quarters:

The first quarter (months 1-3) of the project
- Hire research assistants and provide training
- Set up research facility and purchase items
- Prepare IRB application
- Clean and set up database with previous waves of data
- Review recent literature to inform new data collection
- Responsible personnel
    - Hiring and training: Nansook Park (PI) and Christopher Peterson (co-PI)
    - IRB application: Park (PI) and Peterson (co-PI)
    - Recent literature review: PI, co-PI, RA
    - Setting up database: PI, co-PI, RA
    - Setting up research facility: PI, co-PI, RA

- Consultant
  - COL Patrick Sweeney
- Deliverables
  - IRB application
  - Database
  - Quarterly report
  - Research lab

In the second quarter of the project (months 4-6)
- Attend data analyses workshops (PI)
- Conduct preliminary data analyses of existing data to inform followup data collection
- Create the survey package
- Prepare and submit applications for IRB approvals
- Respond to any required changes from the appropriate IRB board
- Attend programmatic/science review meeting
- Submit quarterly report
- Responsible personnel
  - Preliminary data analyses: PI, co-PI
  - IRB and HRPO applications: PI, co-PI
  - Create survey package: PI, co-PI
  - Attend meeting: PI, co-PI
- Consultant
  - COL Patrick Sweeney
  - Internet study specialists
- Deliverables
  - IRB application
  - Survey package
  - Presentation slides
  - Quarterly report

In the third quarter of the project (months 7-9)
- Revision and respond to any required changes from the appropriate IRB board
- Further develop the survey package for followup data collection
- Prepare online survey using Qualtrics
- Complete pilot testing online survey and revision
- Prepare database for contact information for participant follow-up
- Submit quarterly report
- Responsible personnel
  - IRB revision and responses: PI, co-PI
  - Prepare online survey: PI, co-PI, RA
- Consultant
  - COL Patrick Sweeney

- o Internet study specialists
- Deliverables
  - o IRB revision and responses
  - o Online survey
  - o Quarterly report

In the fourth quarter of the project (months 10-12),
- Secure IRB and HRPO approval
- Prepare and submit application for HRPO approval
- Respond to any required changes from the appropriate HRPO board.
- Update database for contact information for participant follow-up
- Begin initial followup data collection by Internet
- E-mail message to participants informing data collection
- Monitor data collection progress
- Prepare annual report
- Responsible personnel
  - o IRB and HRPO revision and responses: PI, co-PI
  - o Prepare online survey: PI, co-PI, RA
  - o Pilot testing online survey: PI, co-PI, RA
- Consultant
  - o COL Patrick Sweeney
  - o Internet study specialists
- Human subjects: Yes
- Deliverables
  - o IRB and HRPO approvals
  - o Online survey
  - o Updated contact information database

In the fifth quarter of the project (months 13-15),
- Submit annual report
- Continue data collection by Internet
- Monitor data collection progress
- Update and maintain online survey
- Set up research facility for data collection and analyses
- E-mail messages to non-participants to encourage participation
- Prepare and send mail package to non-responded participants
- Data entry
- Quantitative data analyses of previous waves of data
- Begin qualitative analyses of themes of previous waves
- Attend data analyses workshops (PI and co-PI)
- Prepare quarterly report
- Responsible personnel

- o PI, co-PI, RA
- Consultant: internet survey specialist
  Data analyses specialist
- Human subjects: Yes
- Deliverables
  - o Enrollment targets: 100 participants
  - o Annual report
  - o Mail survey package
  - o Quarterly report

In the sixth quarter of the project (months 16-18),
- Continue followup data collection by Internet and mail
- Monitor data collection progress
- E-mail reminder messages to non-participants to encourage participation
- Send reminder mail package to non-responded participants
- Phone contact begin to follow up with non-responded participants when it is necessary
- Data entry
- Update research facility for data collection and analyses
- Attending web design and data analyses workshops (PI and co-PI)
- Prepare quarterly report
- Enter and clean followup data into statistical analysis programs
- Update database by combining survey data from all waves
- Set up database for open-ended questions from all waves
- Attend meeting
- Responsible personnel
  - o PI, co-PI, RA
- Consultant: Web design and internet study specialists
  - o Data analyses specialist
- Human subjects: Yes
- Deliverables
  - o Enrollment targets: additional 100-150 participants
  - o Survey mail package
  - o Complete quantitative database
  - o Quarterly report
  - o Presentation slide

In the seventh quarter of the project (months 19-21),
- Create study website
- Identify and create a list of Soldiers who best exemplify resilience and growth for interviews.
- Create semi-structured interview questions and protocol

- Prepare amended applications for appropriate IRB and HRPO approvals (for interview) if necessary
- Prepare and submit annual review for IRB and HRPO approvals
- Contact Soldiers for interviews and scheduling
- Begin interviews by phone and in person when appropriate
- Travel for interview data collection for selected number of interviewees
- Continue quantitative and qualitative analyses
- Attending data analyses workshops (PI)
- Responsible personnel
  - Create interview: PI, co-PI
  - IRB and HRPO amendments: PI, co-PI
  - Contact Soldiers: RA
  - Conduct interviews: PI
- Consultant
  - COL Patrick Sweeney
  - Data analyses specialist
  - Web design and internet study specialists
- Human subjects: Yes
- Deliverables
  - Interviews
  - IRB and HRPO amended applications and approvals
  - IRB annual review submission
  - List of Soldiers who best exemplify resilience and growth
  - Scheduled interviews
  - Quarterly report

In the eight quarter of the project (months 22-24),
- Update and maintain study website
- Contact Soldiers for interviews and scheduling
- Interviews by phone and in person when appropriate
- Travel for interview data collection for selected number of interviewees
- Transcribe interviews
- Continue quantitative analyses
- Attend data analyses workshops (PI)
- Prepare annual report
- Responsible personnel
  - Interviews: PI
  - Transcribe interviews: RA
  - Quantitative analyses: PI, co-PI
- Consultant
  - Data analyses specialist
  - Web design and internet study specialists

- Human subjects: Yes
- Deliverables
  - Interviews
  - Annual report

In the ninth quarter of the project (months 25-27)
- Update and maintain study website
- Interviews by phone and in person when appropriate
- Transcribe interviews
- Develop qualitative analyses plan
- Recruit and train qualitative analyses coders
- Conduct qualitative analyses of themes in the interviews
- Continue quantitative analyses
- Submit annual report
- Attend data analyses and reporting workshop (PI)
- Responsible personnel
  - PI, co-PI, RA
- Consultant
  - Data analyses specialist
  - Web design and internet study specialists
- Deliverables
  - Interviews
  - Transcribed interviews
  - Qualitative analyses protocol
  - Quarterly report

In the tenth quarter of the project (months 28-30)
- Update and maintain study website
- Prepare final report
- Attend data analyses and reporting workshop (PI)
- Continue data analyses
- Prepare research report(s) for professional journal(s).
- Responsible personnel
  - PI, co-PI, RA
- Deliverable(s)
  - Research report(s)
  - Final report

RESILIENCE AMONG SOLDIERS AND VETERANS SURVEY

Dear Soldier or Veteran:

During the past few years, you have been participating in our on-going study "Individual and Organizational Effectiveness in Dangerous Contexts" conducted by COL Patrick Sweeney, CPT Paul Lester, Dr. Michael Matthews, and COL Sean Hannah from the Department of Behavior Sciences and Leadership at the United States Military Academy and by Dr. Nansook Park and Dr. Christopher Peterson from the University of Michigan. We are very grateful for your contribution.

The goal of this follow-up is to gain further insight into the factors that influence the health and well-being of soldiers who were deployed to combat zones. The benefits of this research are that its results of the project will be used to improve the quality of leadership and soldier education and training programs.

This survey asks about your wartime experiences and your current feelings and thoughts. If this makes you feel uncomfortable or if you have any concerns, please contact us if we can be of help, or consult these resources:
Military One Source: http://www.militaryonesource.com/MOS.aspx or 1-800-342-9647
Veterans Crisis Line: http://www.veteranscrisisline.net/ or 1-800-273-8255 #1
Mental Health Services Locator: http://mentalhealth.samhsa.gov/databases/
National Hopeline Network: 1-800-784-2433

If you are able to help, please follow the directions that follow. The total time required to complete this survey is about 25 minutes. You need not answer specific questions if you wish not to do so.

To compensate you for your time and help, we would like to offer you $20 for completing the survey. We will mail you a check to the address you prefer. If you are in the Army, you will need to complete the survey while off-duty or on leave. We will ask you for your mailing address in order send you the check.

We assure you that this survey is **CONFIDENTIAL**. We ask for identification information only in order to match your responses to your survey responses from previous times. Your name will never be associated with your survey responses, which will be stored in encrypted files on a secure computer.

Nothing you say will ever be linked specifically to you in any report. Survey responses will be combined, and thus the research project will not single out any individual in any reports. Only information on groups of participants will be reported, and no report will ever identify any individual or unit. We are interested in the patterns of responses across soldiers and veterans, and only persons involved in the collecting or preparing information for analysis will have access to completed surveys.

Your participation is **VOLUNTARY**, and you may choose to stop participation at any time if you decide. If you withdraw from the study before completing the entire survey, all of your responses from the survey will be deleted. If you wish not to be contacted about further follow-up studies, please let us know.

However, your participation is crucial for collecting complete and representative information that will allow us to understand the long-term impacts of deployment and how best to prepare soldiers and units for sustained combat operations and how best to maintain their health and well-being. As noted, the results will be used to make recommendations concerning leader development in the Army's schools and training programs. Your participation will be greatly appreciated.

If you have any questions about this study, feel free to contact Dr. Nansook Park or Dr. Christopher Peterson, Department of Psychology, University of Michigan, Ann Arbor, MI 48109-1043; 734-763-3166 or 734-764-6567; nspark@umich.edu or chrispet@umich.edu.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 540 E Liberty St., Ste 202, Ann Arbor, MI 48104-2210, (734) 936-0933 [or toll free, (866) 936-0933], irbhsbs@umich.edu. The study identification number is HUM00052500.

Nansook Park, Ph.D.
Christopher Peterson, Ph.D.
Department of Psychology
University of Michigan
Ann Arbor, MI
nspark@umich.edu
chrispet@umich.edu

Please provide the following information about where to send your $20 check:

Name_____

Street Address_____Apt_____

City_____State_____Zip_____

1. **Current (or last if you are retired) duty position:** _____

2. **Current (or last if you are retired) rank:**

    ○ Private (PV1 or E1),   ○ First Sergeant (1SG)
        Private 2 (PV2 or E2),   ○ Sergeant Major (SGM),
        Private First Class (PFC or E3)   Command Sergeant Major (CSM)
    ○ Specialist (SPC or E4)   ○ Second Lieutenant (2LT or O1)
    ○ Sergeant (SGT or E5)   ○ First Lieutenant (1LT or O2)
    ○ Staff Sergeant (SSG or E6)   ○ Captain (CPT or O3)
    ○ Sergeant First Class (SFC or E7)   ○ Major (MAJ or O4)
    ○ Master Sergeant (MSG or E8)   ○ Lieutenant Colonel (LTC or O5)

3. **Total time in Service in years and months (e.g., 3 years, 2 months)?**

    Years_____ Months_____

4. **What is your current status?**

    ○ Active duty Army: deployed in Iraq   ○ Civilian: Working full-time
    ○ Active duty Army: deployed in Afghanistan   ○ Civilian: Working part-time
    ○ Active duty Army: in US   ○ Civilian: Unemployed
    ○ Active duty Army: ○ Civilian: Student
        in another country _____

    ****

5. *If you have left the Army, please answer questions a and b :*
    If you are currently in the Army, please SKIP questions a and b :

    a. **When did you leave (e.g., 2010, September)?**

        Year_____ Month_____

    b. **How often are you in contact with your Army friends and colleagues?**

        ○ Never   ○ Rarely   ○ Sometimes   ○ Often   ○ Very often

    ****

6. **What is your highest education?**

    ○ High school or equivalent   ○ Bachelors degree
    ○ Some college courses   ○ Master's degree
    ○ Associates degree   ○ Doctoral degree

7. **What is your marital status?**

   ○ Married or living as   ○ Divorced or separated
   ○ Single, never married   ○ Widowed

8. **If you are not currently married, are you in a committed relationship?**

   ○ Yes   ○ No   ○ Not Applicable

9. **How many children do you have?**

   ○ 0   ○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6 or more

10. **All things considered, how satisfied have you been with <u>your life as a whole</u>?**

    ○ Not at all   ○ Somewhat   ○ Neutral   ○ Satisfied   ○ Extremely satisfied

11. **How satisfied are you with <u>your family</u>?**

    ○ Not at all   ○ Somewhat   ○ Neutral   ○ Satisfied   ○ Extremely satisfied

    ○ Not Applicable: No family

12. **How satisfied are you with <u>your marriage/relationship</u>?**

    ○ Not at all   ○ Somewhat   ○ Neutral   ○ Satisfied   ○ Extremely satisfied

    ○ Not Applicable: No relationship

13. **Instructions:** Please read each of the following statements carefully, thinking about how it relates to your life, and then indicate how well it describes you. Choose the option that best represents how well the statement describes you. Place the number in the blank to the left side of the statement

1	2 3 4 5 6 7					
Not like me at all	Mostly not like me	Somewhat not like me	Neutral	Somewhat like me	Mostly like me	Very much like me

_____ 1. In most ways life is close to my ideal.

_____ 2. The conditions of my life are excellent.

_____ 3. I am satisfied with my life.

_____ 4. So far I have gotten the important things I want in life.

_____ 5. If I could live my life over, I would change almost nothing.

14. Instructions: Here are a number of words that describe different feelings and emotions. Indicate to what extent you have felt this way during the **PAST FEW WEEKS**. Place the number in the blank to the left side of the word(s).

0	1 2 3 4			
Never	Hardly Ever	Some of the Time	Often	Most of the Time

_____ joyful	_____ hostile	_____ angry
_____ distressed	_____ enthusiastic/energized	_____ happy/content
_____ excited	_____ proud	_____ bored
_____ upset	_____ sad	_____ love
_____ hopeful	_____ peaceful/calm	_____ amused/playful
_____ guilty	_____ ashamed	_____ anxious/nervous
_____ scared/fearful	_____ inspired	

15. Instructions: Please read each statement below and indicate the frequency that you experience the behavior or feelings outlined. Choose the most accurate option in each case, based on the scale below. Please place your answer in the blank space to the left of the statement.

1	2	3	4	5
Never	Somewhat Frequent	Moderately Frequent	Quite Frequent	Extremely Frequent

_____ 1. I have nightmares of experiences in the military that really happened.

_____ 2. Lately, I have felt like killing myself.

_____ 3. I fall asleep, stay asleep and awake only when the alarm goes off.

_____ 4. My dreams at night are so real that I waken in a cold sweat and force myself to stay awake.

_____ 5. I feel like I cannot go on.

_____ 6. I do not laugh or cry at the same things other people do.

_____ 7. I enjoy the company of others.

_____ 8. Unexpected noises make me jump.

_____ 9. There have been times when I used alcohol (or other drugs) to help me sleep or to make me forget about things that happened while I was in the service.

_____ 10. I lose my cool and explode over minor everyday things.

_____ 11. I have a hard time expressing my feelings even to the people I care about.

16. Instructions: Below is a list of the ways you might have felt or behaved. Please tell us how often you have felt this way during the **<u>PAST WEEK</u>** by choosing the most accurate option. Place the number in the blank to the left side of the statement.

0	1 2 3		
Rarely or None of the Time (Less than 1 Day)	Some or Little of the Time (1-2 Days)	Occasionally or a Moderate Amount of Time (3-4 Days)	Most or All of the Time (5-7 Days)

_____ 1. I was bothered by things that usually don't bother me

_____ 2. I did not feel like eating; my appetite was poor.

_____ 3. I felt that I could not shake off the blues even with the help from my family or friends.

_____ 4. I felt I was just as good as other people.

_____ 5. I had trouble keeping my mind on what I was doing.

_____ 6. I felt depressed.

_____ 7. I felt that everything I did was an effort.

_____ 8. I felt hopeful about the future.

_____ 9. I thought my life had been a failure.

_____ 10. I felt fearful.

_____ 11. My sleep was restless.

_____ 12. I was happy.

_____ 13. I talked less than usual.

_____ 14. I felt lonely.

_____ 15. People were unfriendly.

_____ 16. I enjoyed life.

_____ 17. I had crying spells.

_____ 18. I felt sad.

_____ 19. I felt that people dislike me.

_____ 20. I could not get "going."

17. How often do you drink per <u>WEEK</u> (except with meals or religious ceremonies)?

○ Never   ○ 1-2 times   ○ 3-4 times   ○ 5-7 times

18. Do you smoke?

○ Yes   ○ No

19. Compared to other people your age, how would you rate your health in general?

Much worse than average				Average					Much better than average
1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○
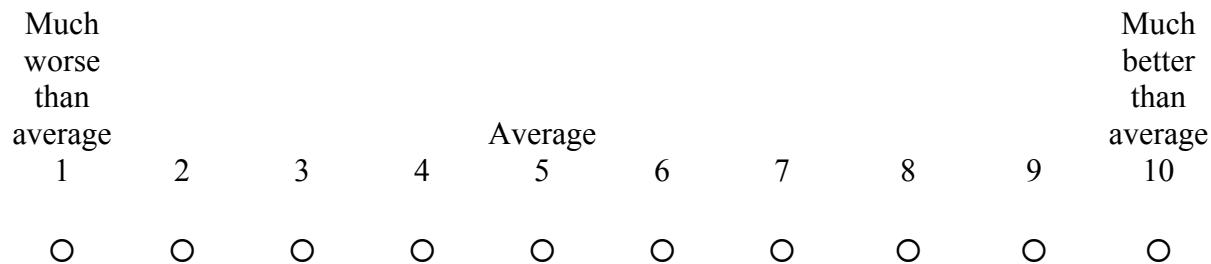
20. Instructions: Read each of the events listed below, and check <u>**ALL**</u> events which have occurred to you in the <u>**LAST TWO YEARS**</u>.

❑ Children with problems

❑ Spouse/partner begins or stops work

❑ Conflict with family members

❑ Conflict with leader

❑ Conflict with team member(s)

❑ Death of spouse or significant others

❑ Death of close family member

❑ Illness or injury in family member or loved ones

❑ Change in responsibilities at work

❑ Betrayal by family or loved ones

❑ Cheating spouse or significant other

❑ Increased arguments with spouse or significant others

❑ Pregnancy of you or your partner

❑ Child birth

❑ Financial trouble

❑ Divorce

❑ Death of close friend

❑ Marital separation

❑ Personal injury or illness

❑ Problem with friends

❑ Relationship breakup

❑ Problem in family or loved ones

❑ Service-connected disability

❑ **I have experienced none of these events in the last two years.**

21. Instructions: How would you describe **YOUR FAMILY** as a whole? Please choose the most accurate option. Place the number in the blank to the left side of the statement.

1	2 3 4 5 6				
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	Not Applicable/ No Family

_____ 1. My family is very supportive of me.

_____ 2. I am very close to my family.

_____ 3. While in the Army, I was sure that the unit would look out for my family while I was deployed.

_____ 4. Overall, my family adjusted well to the demands of military life.

_____ 5. My family doesn't get along well together.

_____ 6. My family does fun things together.

_____ 7. When my family makes important decisions, we all share our opinions.

_____ 8. My family avoids discussing our fears and concerns.

_____ 9. My family is proud of what I have done in the military.

_____ 10. The Army meets (met) my family's needs.

_____ 11. My family supports (supported) my decision to serve in the Army.

_____ 12. The Army makes (made) it easy for my family to do well.

22. Instructions: Read each of the following statements and think about how it relates to your life. Choose the option (check the bubble) that best describes you. Place the number in the blank to the left side of the statement.

1	2 3 4 5 6 7					
Not like me at all	Mostly not like me	Somewhat not like me	Neutral	Somewhat like me	Mostly like me	Very much like me

_____ 1. I have friend(s) to whom I feel very close.

_____ 2. In uncertain times, I usually expect the best.

_____ 3. I am important to others.

_____ 4. I often feel left out.

_____ 5. When I am stressed out, I have effective ways to deal with it.

_____ 6. I believe that I have the responsibility to make the world a better place.

_____ 7. When bad things happen, I try to make sense of them or find their meaning.

1	2 3 4 5 6 7					
Not like me at all	Mostly not like me	Somewhat not like me	Neutral	Somewhat like me	Mostly like me	Very much like me

_____ 8. I often help others in need without being asked.

_____ 9. My life has lasting meaning.

_____ 10. Others pay attention to me.

_____ 11. I have someone to talk to when I feel down.

_____ 12. I rarely count on good things happening to me.

_____ 13. I often feel part of a group.

_____ 14. I understand the meaning in my life.

_____ 15. In stressful situations, I often use humor or jokes to reduce stress.

_____ 16. I often find comfort in my religion or spiritual beliefs.

_____ 17. When bad things happen, I try to see their benefits or positive sides.

_____ 18. I often give my time and effort to those in need.

_____ 19. I would be missed if I went away.

_____ 20. I have someone I can count on to care about me, no matter what happens.

_____ 21. I often feel close to people.

_____ 22. Overall, I expect more good things to happen to me than bad.

_____ 23. I am often able to laugh at things.

_____ 24. I feel part of something greater than myself.

_____ 25. Others are interested in what I have to say.

_____ 26. I often feel I do not belong anywhere.

_____ 27. I respond to stress by making things worse than they are.

_____ 28. I try to enjoy things and have fun whenever appropriate.

_____ 29. When I am stressed out, I turn to sources of spiritual strength.

_____ 30. I often find joy even from small things in life.

_____ 31. When good things happen, I celebrate them.

23. **Instructions**: How would you describe your feelings about your spouse/partner and relationship? Place the number in the blank to the left side of the statement. Place the number in the blank to the left side of the statement.

1	2 3 4 5 6				
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	Not Applicable/ No Partner

_____ 1. I feel close to my partner.

_____ 2. When problems occur in our relationship, I often start a conversation about them.

_____ 3. When good things happen to me, my partner is really happy for me.

_____ 4. My partner and I clearly communicate our expectations for each other.

_____ 5. My partner does not understand me.

_____ 6. In difficult times, we turn to each other for support.

_____ 7. When we're not happy about something, we tell each other.

_____ 8. My partner and I have a trusting relationship.

_____ 9. My partner and I often say nice things to each other.

_____ 10. My partner and I often do things together that we enjoy.

_____ 11. Our relationship has serious problems.

24. **Instructions:** Please write about an event or situation that you encountered during the last two years that was **most traumatic, difficult, or stressful at work or in your personal life.** Please describe the event or situation in as much detail as possible, but if you write about other people, please do not provide any information that would allow them to be identified, like their names or identities. What happened? Why was it traumatic or stressful? Why did it happen? How did it end?   Write as much as you can. Use back of the page if needed.

    a. The most traumatic, difficult, or stressful experience:

b. How did you handle the situation just described?

c. How well do you think you handled the situation just described?
- ○ Poorly
- ○ Somewhat poorly
- ○ Somewhat well
- ○ Fairly well
- ○ Very well

25. In your career, how many <u>MONTHS</u> have you spent in a combat zone?
- ○ 0-6
- ○ 7-12
- ○ 13-24
- ○ 25-36
- ○ 37-48
- ○ 49-60
- ○ 60+ (five or more years)

26. In your career, how many times have you been deployed to a combat zone including the current one?

○ 1　　　○ 2　　　○ 3　　　○ 4　　　○ 5　　　○ More than 5

27. In your career, how many direct fire engagements have you been involved in?

○ 0　　　○ 1-5　　　○ 6-10　　　○ 11-15　　　○ 16-20　　　○ More than 20

28. Have you lost a close friend or comrade in combat?

○ Yes　　　　○ No

29. Instructions: If any, what **<u>positive experiences</u>** have you had at your work or in your personal life during the **<u>last two years</u>**? Things or experiences that made you feel proud, happy, or good. Write about as many as you can. Use back of the page if needed.

What effects did these positive experiences have on you?

30. How often do you spend time at personal interests or hobbies other than work?

○ Never   ○ Rarely   ○ Sometimes   ○ Often   ○ Regularly

31. Instructions: Think about significant challenges or traumatic events that you have faced during your combat tours. Indicate for each statement below the degree to which a change occurred, if any, in your life as a result of facing these significant challenges or traumatic events in your combat tours. Place the number in the blank to the left side of the statement.

0 = **I did not experience this change** as a result of my military experience to date.
1 = I experienced this change to a **very small degree** as a result of my military experience to date.
2 = I experienced this change to a **small degree** as a result of my military experience to date.
3 = I experienced this change to a **moderate degree** as a result of my military experience to date.
4 = I experienced this change to a **great degree** as a result of my military experience to date.
5 = I experienced this change to a **very great degree** as a result of my military experience to date.

_____ 1. I changed my priorities about what is important in life.

_____ 2. I have a greater appreciation for the value of my own life.

_____ 3. I developed new interests.

_____ 4. I have a greater feeling of self-reliance.

0 = **I did not experience this change** as a result of my military experience to date.
1 = I experienced this change to a **very small degree** as a result of my military experience to date.
2 = I experienced this change to a **small degree** as a result of my military experience to date.
3 = I experienced this change to a **moderate degree** as a result of my military experience to date.
4 = I experienced this change to a **great degree** as a result of my military experience to date.
5 = I experienced this change to a **very great degree** as a result of my military experience to date.

_____ 5. I have a better understanding of spiritual matters.

_____ 6. I more clearly see that I can count on people in times of trouble.

_____ 7. I established a new path for my life.

_____ 8. I have a greater sense of closeness with others

_____ 9. I am more willing to express my emotions.

_____ 10. I know better than I can handle difficulties.

_____ 11. I am able to do better things with my life.

_____ 12. I am better able to accept the way things work out.

_____ 13. I can better appreciate each day.

_____ 14. New opportunities are available which wouldn't have been otherwise.

_____ 15. I have more compassion for others.

_____ 16. I put more effort into my relationships.

_____ 17. I am more likely to try to change things which need changing.

_____ 18. I have a stronger religious faith.

_____ 19. I discovered that I'm stronger that I thought I was.

_____ 20. I learned a great deal about how wonderful people are.

_____ 21. I better accept needing others.

Thank you for your important contributions to this research.
If you have any concerns or comments, feel free to contact us.

Nansook Park, Ph.D.
Christopher Peterson, Ph.D.
Department of Psychology
University of Michigan
Ann Arbor, MI
nspark@umich.edu
chrispet@umich.edu

RESILIENCE AMONG SOLDIERS AND VETERANS SURVEY

We ask for your continued support for the study of the effects of combat on individuals. We respectively request that you provide contact information so we can share results and insights with you and also send you follow-up questionnaires in the future. Please provide your contact information. <u>Your contact information will be protected and only used for the current research</u>.

Personal E-mail:_____

_____

Home Mailing Address: _____

_____

Phone: (   ) _____

UNIVERSITY OF MICHIGAN
PSYCHOLOGY
exploring the mind

Characterizing Resilience and Growth among Soldiers: A Trajectory Study

Nansook Park, Ph.D.
Christopher Peterson, Ph.D.
University of Michigan

PSYCHOLOGY
exploring the mind

Co-PI and Acknowledgments

- Co-PI: Christopher Peterson
- Acknowledgments: Patrick Sweeney, Michael Matthews, and Sean Hannah

Study Background and Rationale

- Today's Soldiers face unprecedented challenges, and the adverse and/or traumatic experiences of deployment to a war zone can take a toll.

- Having our Soldiers be at their very best is essential for successful completion of the various Army missions and for successful lives of Soldiers when they leave the service.

- Forms of psychosocial fitness—e.g., psychological vigor and good social relationships—are as important as physical fitness but have not been systematically measured, monitored, or cultivated.

- Needed is an approach that looks at psychosocial fitness and assesses psychological strengths and assets as well as problems.

- The goal of this research is to develop models of Soldier resilience and growth that will inform United States Army training programs.

- The specific purpose of the study is to measure resilience and growth in terms of actual trajectories of psychological functioning over time and then to investigate the psychological, social, and organizational protective factors and assets that predict how Soldiers fare following adversity.

Research Objectives and Questions

- Objective 1: Using latent curve modeling, to identify different developmental trajectories of psychological functioning among Soldiers after adversity
  - Q1: What are the actual trajectories—e.g., resilience, recovery, growth, disorder—that emerge?
  - Q2: What are the relative frequencies of different trajectories?
  - Q3: Do different trajectories occur at different rates?
- Objective 2: To determine psychological and social factors of Soldiers that predict resilient and growth trajectories
  - Q4: What are psychosocial predictors of a resilient trajectory?
  - Q5: Similarly, what are psychosocial predictors of a growth trajectory?

PSYCHOLOGY
exploring the mind

Trajectories Following Adversity
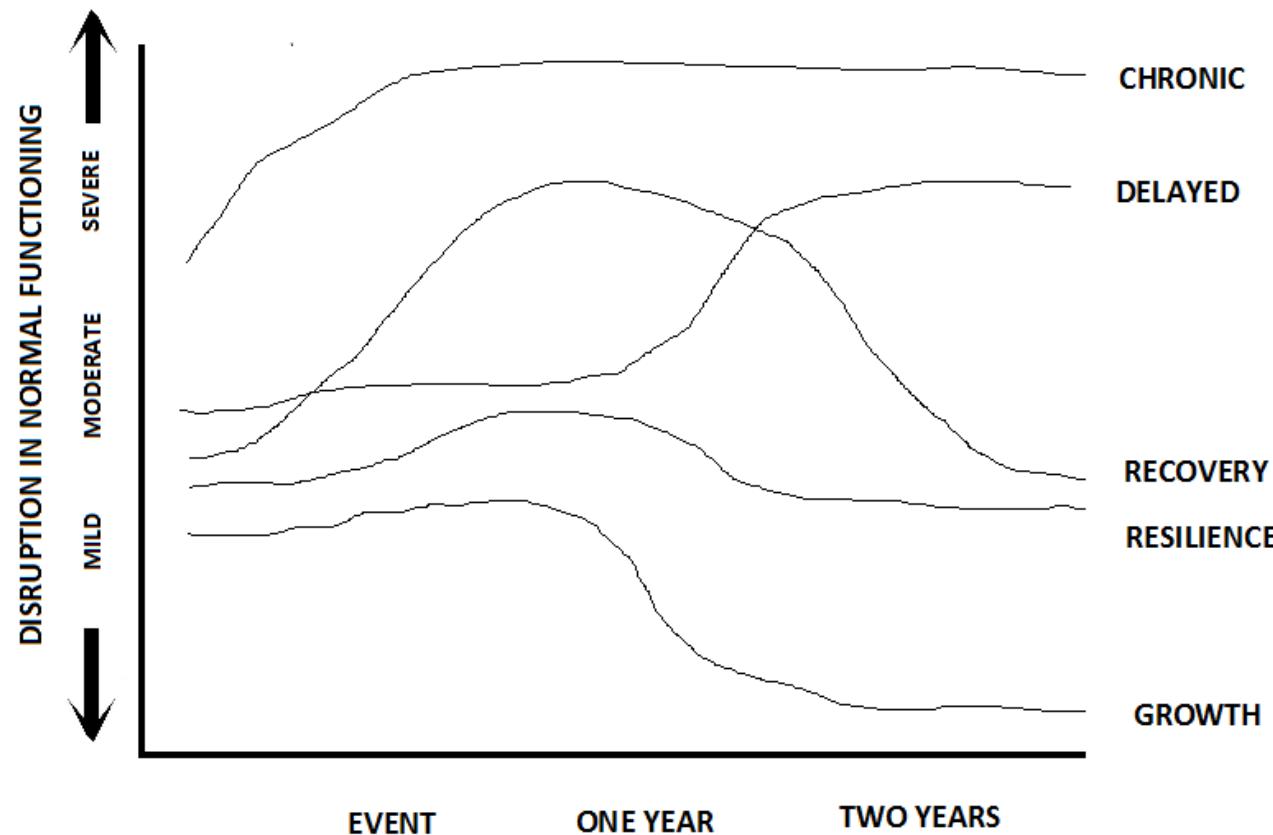
Design and Method

- This is the fifth wave of a longitudinal investigation of 748 Soldiers before, during, and after deployment to Iraq, using survey and interview methods
- Waves One (February, 2008), Two (July, 2008), and Three (May, 2009) done
- Wave Four in progress

Wave Five Measures

- *Demographics*
- *Lifetime combat exposure*
- *Psychological Measures*
  - Overall satisfaction with life, family, relationship
  - Satisfaction with Life Scale: SWLS
  - PANAS
  - PTSD: Mississippi Short Version
  - Depression: CES-D
  - Post-Traumatic Growth Inventory: PTGI
  - Family Satisfaction
  - Partner and Relationship Satisfaction

Wave Five Measures (continued)

- *Attitudes, Behaviors, and Beliefs*
  - Mattering
  - Social support
  - Social connectedness
  - Optimism
  - Emotion regulation
  - Strategies for coping with stress
  - Flexibility
  - Spirituality
  - An orientation to meaning in life
  - Meaning making
  - Generosity
  - An orientation to engagement in life
  - Engagement at work
  - Social fitness
  - Interests and hobbies
  - Community involvement

Wave Five Measures (continued)

- *Physical Health* (self-rated health, alcohol consumption, smoking)
- *Stressful Live Events* (event checklist, intrusive rumination, deliberate reflection)
- *Open-Ended Questions*
- *Interview*

Preliminary Findings (Waves 1-3)

- Immediately post-deployment, Soldiers on average had about the same psychological well-being as before deployment, evidence of resilience.

- The factors predicting *relative* well-being immediately following deployment included those emphasized in the Comprehensive Soldier Fitness Program: psychological fitness (e.g., positive affect, optimism); social fitness (e.g., unit cohesion and trust); family fitness (e.g., social support, family support); and spiritual fitness (e.g., orientation to meaning, meaning-making).

- These same factors also predicted reports of growth following deployment, although usually less robustly.

Preliminary Findings

Exposure to Potentially Traumatic Events at Wave 3

Event	Average / Frequency
Months in combat zone	19.8
Number of deployments	1.7
Direct fire engagements	14.8
Indirect fire engagements	52.5
IED attacks	5.3
Times exposed to US/Coalition killed/wounded	3.8
Times exposed to enemy killed/wounded	5.8
Killed anyone?	37%
Lost a close friend/comrade in combat?	76%

Preliminary Findings (continued)

Well-Being Across Waves

Measure	Wave 1	Wave 2	Wave 3	Improvement*
Life satisfaction	4.18	4.26	4.39	53%
Depression	16.1	18.9	20.2	27%
PTSD	22.5	22.2	23.6	37%
Positive affect	2.39	1.90	2.40	46%
Negative affect	1.64	1.64	1.77	44%
Growth	53.2	42.6	50.4	46%

*Percent of sample improved from Wave 1 to Wave 3.

Preliminary Findings (continued)

- Wave 2 factors individually predicting Wave 3 well-being following deployment (controlling for Wave 1 well-being, age, gender, combat exposure)
  - *psychological fitness* (e.g., positive affect, optimism)
  - *social fitness* (e.g., unit cohesion and trust)
  - *family fitness* (e.g., social support, family support)
  - *spiritual fitness* (e.g., orientation to meaning, meaning-making).
- Same factors also predicted reports of growth following deployment, although less robustly.
- Also predicting reported growth following deployment was good leadership.

Factor Analysis and Path Analysis
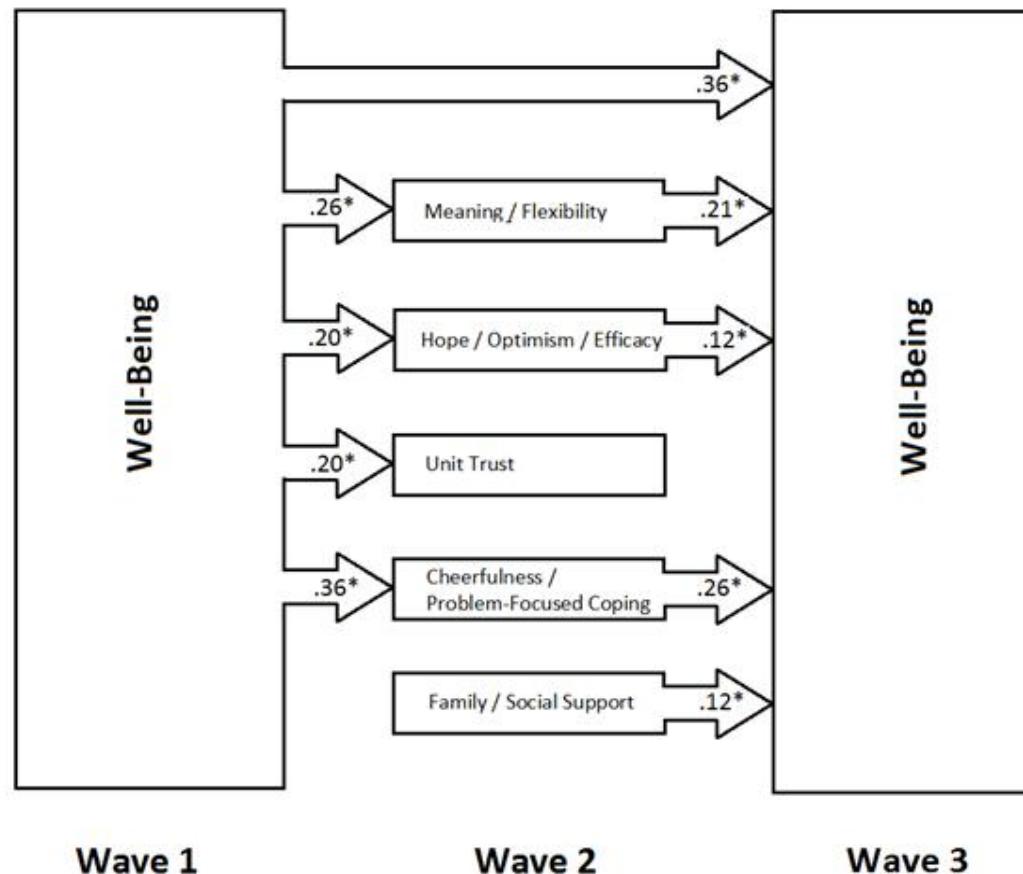
Current and Anticipated Challenges

- IRB
- Data collection

Study Progress

- Preliminary data analyses of previous waves
- University of Michigan IRB pending
- Contact information database assembled
- Password-protected Internet site for survey administration created

Dissemination Plan

- Final reports to Army
- Scientific publications
- Website

ADVERSITY, RESILIENCE, AND THRIVING: A POSITIVE PSYCHOLOGY

PERSPECTIVE ON RESEARCH AND PRACTICES

Nansook Park

University of Michigan

The things that go right in our lives do predict future successes

and the things that go wrong do not damn us forever.

- J. Kirk Felsman and George E. Vaillant (1987)

Throughout life, bad things happen to people that range from minor hassles to catastrophic occurrences. Adversities can take a toll on the health and well-being of individuals and families (Van der Kolk, McFarlane, & Weisaeth, 1996). Even in the United States (US)—an affluent and relatively safe country—general population surveys estimate that as many as 40% of people (> 120 million individuals) experience during their lifetime one or more of the events that can lead to post-traumatic stress disorder (PTSD): loss, abuse, assault, rape, accident, natural disaster, combat, and so on (e.g., Breslau, Chilcoat, Kessler, & Davis, 1999; Peterson, Park, Pole, D'Andrea, & Seligman, 2008). The risk of adversity is even higher in some segments of the population, for instance, those in dangerous jobs which expose them to potential danger on an ongoing basis, such as military and law enforcement personnel, correctional officers, firefighters, and emergency responders.

The experience of adversity is virtually inevitable, but suffering in its wake need not be. Interventions to prevent and treat difficulties in the wake of adversity have proliferated (Foa, Keane, Friedman, & Cohen, 2009). These interventions are of course well-intended and in some cases successful in their aims. But, for the most part, they are incomplete because they do not grapple with an important fact: Most people exposed to adverse events do *not* develop chronic problems (Bonanno, 2004).

For example, even the most liberal estimates of the frequency of PTSD among today's

US Soldiers rarely exceed 30% (Milliken, Auchterlonie, & Hoge, 2007; Seal, Bertenthal, Miner, Saunak, & Marmar, 2007). The same conclusion follows from studies of civilians experiencing adverse events (e.g., Bonanno, 2004; Masten, 2001). Following adversity, people of course are distressed, but most return to the state of relatively healthy functioning they showed before the adversity, and some even grow from it (Tedeschi & Calhoun, 1995). Said another way, *although few people are invulnerable, most are resilient.*

Despite this growing appreciation that resilience is the typical response to adversity, traditional approaches largely focus on identifying problems and reducing them. The ultimate goal for anyone, even someone who has been traumatized, is to live a happy and fulfilling life, which entails more than relief from suffering or the absence of symptoms. Such a life requires additional skills and conditions. What is needed is a new kind of science and practice that expands and complements existing problem-focused approaches.

Studying human resilience and conditions for thriving is important because doing so provides a better vantage on adversity and its aftermath. Rather than seeing interventions as attempts to rebuild broken individuals, we should see them as attempts to capitalize on people's strengths and assets to speed their recovery and to build a thriving life. The new perspective of positive psychology makes exactly this argument and moreover provides an overall point of view about how people deal with adversity and how they can be helped after difficult life experiences.

The present chapter provides an overview of positive psychology, its background, main concepts, current research findings, and practical implications for working with people who have been exposed to adversities.

What is Positive Psychology?

Positive psychology is a newly christened approach within psychology that takes

seriously as a subject matter those things that make life most worth living. It is the study of what goes right in life, from birth to death (Seligman & Csikszentmihalyi, 2000). It studies optimal experience, people being and doing their best. It expands existing problem-focused approaches. Research findings from positive psychology are intended to contribute to a more complete and balanced scientific understanding of human experience and to teach valuable lessons about how to build a fulfilling life.

Everyone's life has peaks and valleys, and positive psychology does not deny the low points. Its signature premise is more nuanced: What is good about life is as genuine as what is bad and therefore deserves equal attention from psychologists (Peterson & Park, 2003). Positive psychology assumes that life entails more than avoiding or undoing problems and that explanations of the good life must do more than reverse accounts of problems.

Psychology since World War II had focused much of its efforts on human problems and how to remedy them. While the yield of this focus on pathology has been considerable, there has been a cost. Much of scientific psychology has neglected the study of what can go right with people and often has little to say about the psychological good life. More subtly, the underlying assumptions of psychology have shifted to embrace a disease model of human nature. People are seen as flawed and fragile, casualties of cruel environments or bad genetics.

Positive psychology challenges the assumptions of the disease model. It calls for as much focus on strength as on weakness, as much interest in building the best things in life as in repairing the worst, and as much attention to fulfilling the lives of healthy people as to healing the wounds of the distressed. Psychologists interested in promoting human potential need to start with different assumptions and to pose different questions from their peers who assume only a disease model (Park & Peterson, 2006). The most basic assumption that positive psychology

urges is that human goodness and excellence are as authentic as disease, disorder, and distress. Positive psychologists argue that these topics are not secondary, derivative, or otherwise suspect.

The framework of positive psychology provides a comprehensive scheme for describing and understanding the good life. The field can be divided into four related topics:

- positive subjective experiences (happiness, gratification, fulfillment, flow)

- positive individual traits (strengths of character, talents, interests, values)

- positive interpersonal relationships (friendship, marriage, colleagueship)

- positive institutions (families, schools, businesses, communities)

A theory is implied here: Positive institutions enable the development of positive relationships, which facilitate the display of positive traits, which in turn facilitate positive subjective experiences (Park & Peterson, 2003). The word "enable" avoids strict causal language. It is possible for people to be happy or content even in the absence of good character, and good character can operate against the interpersonal and institutional grain. But people are at their best when institutions, relationships, traits, and experiences are in alignment. Doing well in life represents a coming together of all four domains.

Positive psychology is criticized in some quarters for a relentless emphasis on being positive—happy and cheerful (Coyne & Tennen, 2009; Ehrenreich, 2009). This criticism of the field reflects a misunderstanding, because positive psychologists merely propose that what is positive about life is worth studying, in addition to what is negative. Happiness is but one of many topics of interest to positive psychology. Topics that are also studied include character strengths like gratitude and optimism, resilience, meaning and purpose, engagement, and good relationships.

Positive psychologists do not deny the problems that people experience. Positive

psychologists do not ignore the negative such as stresses and adversities in their attempts to understanding what it means to live well (Park & Peterson, 2009). Indeed, what is most challenging in life can set the stage for what is most fulfilling. Consider that complex emotional experiences often blend the positive and negative; that optimism is most apparent when people confront setbacks and failures; that crisis reveals strengths of character; that ongoing challenge is a prerequisite to experience flow in the moment and to achieve something important in a lifetime (Peterson, 2006). Along these lines, identifying and using what one does well can be an effective way to address and resolve psychological problems by leveraging one's strengths and assets (cf. Saleebey, 1992).

In sum, positive psychology is not intended to replace business-as-usual psychology, but rather to complement it by expanding the topics of legitimate study to yield a full and balanced description of the human condition.

Research Findings

Positive psychology research is accumulating that illustrate the importance of explicit attention to the positive and good. Here are some research findings that provide some insight into ways to build a resilient and thriving life in the face of adversity.

Positive Emotions and Life Satisfaction

In contrast to the common notion that happiness is the result of good things in life, studies show that positive emotions such as happiness and general life satisfaction lead to better mental and physical health, well-being, and resilience (see Lyubomirsky, King, & Diener, 2005, for a review).

Evidence suggests that happiness is causal, not epiphenomenal. People who are healthy, successful, and have what they consider a good life are happy. But the less obvious finding from

experimental and longitudinal research is that happiness actually leads to better academic and vocational success, better marriages, good relationships, physical health, and longevity (Lyubomirsky, King, & Diener, 2005).

Positive emotions broaden and build people's psychological, social and behavioral repertoires. Although both negative and positive emotions have important roles in our life, they have different functions. When one experiences a negative emotion (e.g., fear, anxiety, anger) that alerts people to danger, response options narrow, and the person acts with haste to avoid, escape, or undo whatever danger is signaled. In contrast, positive emotions signal safety, and the inherent response to them is not to narrow options but to broaden and build lasting resources (Fredrickson, 2001). It is advantageous to experience positive emotions because they lead people to build so-called psychological resources.

Positive emotions are related to the ability to bounce back from adversity. For example, people who experienced higher levels of positive emotions before the 9/11 attacks recovered faster from the traumatic effects of the events (Fredrickson, Tugade, Waugh, & Larkin, 2003). The habitual experience of positive emotions is not only largely independent of the habitual experience of negative emotions, but has its own consequences above-and-beyond effects of low negative emotions (Fredrickson, 2001). While negative emotions contribute to our survival and safety, positive emotions contribute to resilience and thriving. We need to take happiness and life satisfaction seriously if our goal is to build and sustain a resilient and thriving life.

There have been on-going studies to understand factors that contribute to happiness. Findings today suggest that frequent experiences of happiness matter more than intensity (Diener, Sandvik & Pavot, 1991). Having good relationships with others, being engaged in what one does, having meaning and purpose, feeling competent by using skills and talents, being able

to find humor in everyday life, savoring good things, letting go of grudges, feeling grateful, and expressing gratitude build happiness (Peterson, 2006). Indeed, it is not the acquisition and possession of material things that make us happy, but rather engagement in activities and relationships that matter. Although people who are so poor that they cannot meet their basic needs are unhappy, above the poverty line, increased income makes an ever-diminishing contribution to happiness (Diener, 2008).

Optimism and Positive Thinking

Optimism is the global expectation that more good things will happen than bad events. In everyday language, optimism means positive thinking. Positive thinking has connotations of wishfulness and naiveté, but research shows numerous benefits of positive thinking. Optimism has been studied extensively by psychologists, under several different rubrics: dispositional optimism by Carver and Scheier (1981), hope by Snyder (2000), and explanatory style by Peterson and Seligman (1984). In all of these research traditions, it is found that optimism-positive thinking- is associated with better mood; higher life satisfaction; success in school, work, and athletics; good health; and longer life (Peterson, 2000). Those who think positively are also less likely to experience traumatic "accidents" (Peterson et al., 2001).

Studies show that optimism buffers against the debilitating effects of negative events (see Peterson, 2000, for a review). Optimism is beneficial in large part because it is associated with active problem-solving. The success of cognitive therapy for depression depends on the ability of treatment to change a patient's thinking from negative to positive (Seligman et al., 1988). Prevention programs that encourage more optimistic thinking by cognitive-behavioral strategies make subsequent depression less likely (Gillham, Reivich, Jaycox, & Seligman, 1995).

A positive view of matters is associated with physical, psychological, and social well-

being (Peterson, 2000). Data showing that positive illusions are beneficial stand in sharp contrast to theoretical arguments mounted by business-as-usual clinical psychologists that realism and accuracy are the hallmarks of health (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000).

The effects that each event have on us are not simply due to the event itself but to how we perceive and interpret it. Positive thinking involves positive reframing. Positive attitudes may motivate us to engage in constructive action. When people think that good things will happen to them, they are more likely to try harder because they feel that what they do will make a difference in bringing about a good outcome.

Positive expectations drive analgesic placebo effects through physiological pathways. Specifically, dopamine—implicated in the experience of positive emotions—triggers the release of endorphins (Scott et al., 2007). Optimism and hope are not just in one's head but also in one's nervous system.

Positive Traits

Positive psychology has focused the attention of researchers and practitioners on *strengths of character,* such as hope, wisdom, kindness, and teamwork (Peterson & Seligman, 2004). Much of my own work over the past decade has involved identifying, defining, and measuring positive traits and investigating their correlates and consequences (Park, 2004b; Park & Peterson, 2006a, 2006b, 2006c, 2008, 2010; Park, Peterson, & Seligman, 2006; Peterson & Park, 2009a). Our project focuses on what is right about people and more specifically about the strengths of character that contribute to optimal development across the lifespan. We approach character strengths as a multidimensional construct, a family of positive dispositions. We identified 24 widely-valued character strengths organized under 6 virtues and developed ways to measure them.

Virtue may be its own reward, but it also has demonstrable benefits in many domains of life. Although all strengths of character contribute to fulfillment—happiness, broadly construed—certain positive traits are more robustly associated with fulfillment than others (Park, Peterson, & Seligman, 2004). These strengths of character are gratitude, hope, zest, curiosity, and perhaps most importantly, love, defined as the ability to sustain reciprocated close relationships with other people. We have discovered that these five traits are robustly associated with well-being among youth as well as adults. Even among children as young as three years of age, those described as zestful, hopeful, and loving were also described by their parents as happy (Park & Peterson, 2006a). Thus, for a good life, individuals need to cultivate in particular these five strengths.

Work satisfaction is strongly associated with the character strength of zest (Peterson, Park, Hall, & Seligman, 2009). School success is predicted by perseverance—which is not surprising—but also by such socially-oriented strengths as gratitude and love (Park & Peterson, 2006b).

Less is known about the origins of character strengths than their consequences, but there are some interesting results suggesting that experience with difficult events may actually increase people's positive traits. For example, Peterson and Seligman (2003) studied the character strengths of US adults before and after the September 11 attacks. Elevations in the so-called theological virtues—faith (religiousness), hope, and love—were evident after the September 11 attacks. Along these lines, Peterson, Park, and Seligman (2006) found that experience with physical illness was linked with elevated levels of appreciation of beauty, bravery, curiosity, fairness, forgiveness, gratitude, humor, kindness, love of learning, and religiousness, *if* recovery had occurred. Finally, Peterson, Park, Pole, D'Andrea, and Seligman (2008) studied character

strengths as a function of trauma history—life-threatening accidents, assaults, illnesses, and natural disasters—and found elevations in such strengths as kindness, love, curiosity, creativity, love of learning, appreciation of beauty, gratitude, zest, bravery, honesty, perseverance, and religiousness, precisely the components of post-traumatic growth discussed by Tedeschi and Calhoun (1995). Taken together, these results suggest that potentially traumatic events may trigger the growth of certain positive traits, which in turn can be used as leverage in subsequent interventions with traumatized individuals.

Positive Relationships

Perhaps the most consistent finding in positive psychology is that good relationships with other people—friends, family members, and colleagues at work—are the single most important contributor to the psychological good life. The strongest correlates of happiness are social in nature: e.g., extraversion, social support, number of friends, leisure activities, marriage, employment (but not income) (Peterson, 2006). Perceived social support is also related to resilience in the wake of adversity (Bonnano, Galea, Bucciareli, & Vlahov, 2007). Good relationships provide both emotional and instrumental support during stress and challenge, but also provide a sense of connectedness and the opportunity to celebrate good things in life (Bryant & Veroff, 2006).

Positive psychology research sheds some light on how to build good and lasting relationships. Research has found that responding to the good news relayed by one's romantic partner in an active and constructive way marks a good relationship (Gable, Reis, Impett, & Asher, 2004). This finding is important because so much of couples counseling focuses on resolving conflicts, fighting fairly, and being assertive. Active-constructive responding is enthusiastic, engaged, and positive. For example, when one person says, "I got a promotion at

work," the other person can respond by saying, "That's great. You deserve it. Tell me all about it. What did your boss say? I want to know all the details." The findings can also be applied to any type of relationship. More generally, a good relationship is one in which positive communication considerably outweighs negative communication (Fredrickson & Losada, 2005; Gottman, Coan, Carrere, & Swanson, 1998).

<u>Life Meaning and Purpose</u>

We define a meaningful life as one in which people feel connected to something larger than themselves (Peterson, Park, & Seligman, 2005). "Meaning" is usually assessed by interviews or self-report surveys, under the assumption that a meaningful life is best understood from the vantage of the individual who is living it. Sometimes the search for meaning is distinguished from the presence of meaning (Steger, Frazier, & Oishi, 2006).

Research consistently links the presence of meaning to well-being (Park, Park, & Peterson, 2010). Individuals with a sense of purpose and meaning report greater life satisfaction, more positive affect, higher levels of optimism, and better self-esteem. They are less likely to have psychological problems. However, the search for meaning is related to lower life satisfaction. It seems that although having meaning and purpose is beneficial, the process of finding life meaning may entail challenge and confusion.

Research shows that a life framed by meaning is more satisfying than a life centered on pleasure. The age-old debate within philosophy between eudaimonia (living a life of meaning in accordance with inner virtue) and hedonism (seeking pleasure) has an empirical resolution. Eudaimonia trumps hedonism (Peterson, Park & Seligman, 2005; Waterman, 1993).

Research is lacking on how finding life meaning and purpose originate and develop. When we experience tragic events, we often ask existential question and try to make sense of

what has happened to us (Frankl, 2006). The topic of meaning and purpose is even more relevant in the aftermath of adversity. Although it is not clear how people make sense of traumatic experiences, it is plausible that having meaning and purpose could play an important role in fostering resilience and the recovery process. In any case, professionals should not force or hurry their clients in the process of finding meaning, no matter how good the outcomes are. Instead, there needs to be caution and support for people when they do not have meaning but are searching for it.

<u>Kindness and Generosity to Others</u>

I have already discussed the importance of good social relationships, and a special case of such relationships entails people helping and giving to others. Studies consistently show that doing volunteer work, helping and giving are associated with high life satisfaction and good health (see Post, 2005, for a review). Indeed, giving may be more beneficial to the giver than the receiver (Brown, Nesse, Vinokur, & Smith, 2003).

The implication of these findings is that encouraging people who have experienced difficult events to turn their attention to others might be beneficial. Doing so changes how the givers think about themselves, in positive ways that make them happier and healthier (Schwartz & Sendor, 2009).

Perhaps encouraging people to engage in prosocial or service activities would empower them and increase their sense of self-worthiness. The activities do not need to be organized volunteer activities. Even simple acts of kindness in the community, followed by reflection on them, as through journaling, could have therapeutic effectiveness. For example, in a study with Japanese college students, merely asking them to count the kind acts they performed during the day led to increased happiness and more kind behaviors (Otake, Shimai, Tanaka-Matsumi, Otsui

& Fredrickson, 2006).

Implications for Clinical Practice

Positive psychologists are increasingly turning their attention to application, including interventions in a therapeutic context deliberately intended to improve an individual's quality of life. Positive psychology intervention studies to date have not specifically focused on individuals who have experienced potentially traumatic events. However, previous investigations have implicated a number of factors that buffer against harmful effects of potentially traumatic events and building resilience including optimism, positive emotion, life meaning and purpose, and social support (e.g., Bonanno, 2004; Bonanno, Galea, Bucciareli, & Vlahov, 2007), and these provide promising targets for deliberate interventions from a positive psychology perspective. Positive psychology can be especially useful in trauma work because it approaches individuals in terms of their assets as well as their difficulties, and the use of identified personal, social, and cultural assets is an excellent way to surmount difficulties (Park, 2011).

Goals and Assessment

The goals of intervention based on positive psychology principles are not to move people from -5 to zero—the presumed goal of business-as-usual psychology—but from -5 to +2 or beyond. The therapeutic goals include not only relieving problems but also helping people with or without problems to lead a fulfilling life. Positive psychology's vision of psychological health entails experiencing more positive feelings than negative feelings, satisfaction with life, identification and use of talents and strengths, engagement in activities, positive relationships, contributions to a social community, having meaning and purpose, and being healthy and safe.

When asked how they could tell that treatment has been effective, individuals with DSM diagnoses of depressive disorder described their own view of "remission" in positive psychology

language, spontaneously mentioning that would be more optimistic, have more energy and that they would function well (Zimmerman et al., 2006). They did *not* mention simply the reduction of their symptoms or change in their diagnostic status.

Psychological assessment has often been tilted toward identifying weaknesses, deficiencies, and problems. The positive psychology perspective is that problem- focused assessment should be expanded to include strengths, assets, and competencies (Peterson, Park, & Castro, 2011). For example, low life satisfaction can occur in the absence of psychopathology, and it is nonetheless related to psychological and social problems (Greenspoon & Saklofske, 2001). Conversely, high life satisfaction is linked to good functioning even in the presence of symptoms (Furr & Funder, 1998; Park, 2004a). Absence of problems is not equal to health. Problems and strengths can co-exist.

Whatever the presenting complaints, people also bring into therapy assets and strengths that can be used to resolve their problems. A crucial task of any treatment is therefore to identify a client's resources and encourage their use, not just to solve problems but more generally achieve healthy and flourishing life. Such a balanced approach should build rapport and bolster client confidence.

Positive psychologists have already developed an impressive set of measurement instruments that allow someone doing assessment to break through the zero point of deficiency measures. For example, the healthiest that one can score on a typical measure of depression is zero, but this lumps together people who are blasé with those who are filled with zest and joy. The distinction seems well worth making, and the self-report surveys and interviews developed by positive psychologists allow it.

Most of the existing positive psychology measures were developed for research purposes,

and they are most valid when aggregated to yield conclusions about groups of people. They can also be used ipsatively, to describe the psychological characteristics of an individual and how they stay the same or change over time, but the cautious use of these descriptions is as a point of discussion and departure in treatment. None is a strong diagnostic test, and none should be treated as if it were. Such prudence is appropriate for all psychological assessment, but it is worth emphasizing in the special case of positive psychology measures.

One example of positive psychology assessment is the *Values in Action* (VIA) *Inventory of Strengths* (Park & Peterson, 2006c). This measure assesses an individual's character strengths: twenty-four positive traits, including curiosity, social intelligence, hope, kindness, zest and teamwork. The information drawn from this measure identifies an individual's strengths and can be used by both the individual and the therapist in devising interventions following experience with adverse events.

More descriptions of positive psychology measures can be found in Peterson and Seligman (2004) and Peterson (2006). Many of the popular positive self-report surveys are also available on-line www.authentichappiness.org at no cost. Upon completion of a survey, individual feedback is provided that could be used for intervention.

Intervention Techniques Informed by Positive Psychology

Positive psychologists have shown that a variety of brief interventions can, in the short term, increase well-being and reduce problems such as depression (Seligman, Steen, Park, & Peterson, 2005; Sin & Lyubomirsky, 2009). These interventions have an obvious role not only in remedying distress following experience with adversity but also in building resources that blunt the negative effects of adversity in the first place. Described below are some of promising positive psychology intervention techniques of potential value in prevention, promotion, and/or

treatment interventions for people exposed to adversity.

Savoring

Savoring is our awareness of pleasure and our deliberate attempt to make it last. One way to cultivate positive emotion is to maximize when good things happen in our life. Bryant and Veroff (2006) examined the effects of savoring good events, finding that people who do so are more satisfied. They also identified simple strategies for savoring, such as sharing good events with others, either in the moment or after-the fact; building memories of the good events (e.g., photographs, diaries, souvenirs); congratulating oneself when good things happen; sharpening perceptions during the experience of good events; and becoming fully absorbed in pleasure and not thinking about other matters. Professionals could also help their clients to use more of these strategies to maximize even simple and routine life experiences, such as eating or walking. People who habitually savor are happier and more optimistic, and less depressed than those who do not savor.

Counting Blessings

Across the lifespan, people who are grateful have higher life satisfaction (Park, Peterson, & Seligman, 2005). Gratitude can be added to someone's repertoire by deliberate intervention, and a number of studies by different research groups have shown the effectiveness of so doing for both children and adults by increasing life satisfaction, optimism and reducing depression (Emmons & McCoullough, 2003; Froh, Kashdan, Ozimkowski, & Miller, 2009). Participants are usually asked to write down at the end of the day things that went well during the day and for which they are grateful. Details of this intervention may vary across the number of things listed and the frequency of listing them. This exercise can be modified depending on client age and situation. To avoid making this exercise burdensome to some people, especially children, it could

be a few times a week and count 1 or 2 blessings instead of three blessings. Although more evidence is needed for the effect of different frequencies and amount of blessings on the outcome across different age groups, a study reported the negative effect when this exercise becomes excessive and as a result a burden (e.g., Sheldon & Lyubomirsky, 2006).

In our own work, we have asked participants to write down why each good thing happened, encouraging them to be more mindful (Seligman, Steen, Park, & Peterson, 2005).

Every night for one week, set aside 10 minutes before you go to bed. Use that time to write down three things that went really well on that day and why they went well. You may use a journal or your computer to write about the events, but it is important that you have a physical record of what you wrote. It is not enough to do this exercise in your head. The three things you list can be relatively small in importance or relatively large in importance. Next to each positive event in your list, answer the question, "Why did this good thing happen?"

Participants, specifically those who continue to do this exercise, reported more happiness and less depression. The effect was maintained even in 6 months follow-up. The mechanisms for these effects have not been closely studied, but there are likely several of them. This exercise could help people to pay more attention to the positive aspects of ongoing life and appreciate life more and be more optimistic and experience more positive emotion. When people experience adversity, they could be too overwhelmed to appreciate good things in life. Intervention programs may consider helping clients to recognize, remember and celebrate the positive aspects of their life.

Strengths-Based Approach: Identifying and Using Strengths of Character in Novel Ways

Our multidimensional character strengths measures can be scored within the person (e.g.,

rank ordered)—to identify a client's "signature strengths" relative to his or her other strengths. We believe that everybody has strengths regardless of where they may stand relative to others. This strength-based approach is particularly useful for working with people with a history of disability, low achievement or low self-esteem. They often have a hard time to find anything at which they are good. However, if we compare the 24 strengths *within* a person, we can identify those strengths that are stronger than others. And then, professionals can help them to use these strengths in their lives.

After clients identify top character strengths using on-line questionnaires, they are encouraged to use them in novel ways in their daily life (Seligman, Steen, Park, & Peterson, 2005). Our research found that this exercise reduces depression and increases happiness and that the effect is evident even at 6 month follow-up, so long as people continue to do the exercise.

Once individuals build their confidence by using their signature strengths, they can be taught how to use these strengths to work on weaknesses or less-developed strengths. If discussions and interventions start with the strengths of clients—things at which they are good— this can build rapport and increase motivation.

Research support is still accumulating. Enough outcome studies have been conducted to conclude that strengths-based approaches to change are more than just promising. Not known in most cases is how these expanded therapies fare in direct comparison to business-as-usual treatments for problems, and what are the mechanisms that are involved. I think that attention to both strengths and weaknesses is critical, and that no useful purpose is served by regarding these as mutually exclusive therapeutic goals.

Issues and Considerations

Some issues need to be considered if these techniques are used in clinical practice. First, they are not therapies *per se* but simply exercises to be deployed as part of an overall prevention, promotion, or treatment strategy. The professional must ascertain a client's readiness to change in the particular ways requested in the exercise to improve its effectiveness.

Second, these techniques may be simple to learn and teach, but they are neither easy to implement as a way of life, nor do they cure like an antibiotic. For lasting effects, clients need to integrate them into their regular behavioral routines. Counting blessings for a week will make a person happier for that week, but only if the person becomes habitually grateful will there be a more enduring effect. According to our own research (Seligman, Steen, Park, & Peterson, 2005), people who got the most benefit from positive psychology exercises are those who continuously use them in their life. Living a good life can be taught and achieved, but it requires just as much hard work as all other intervention efforts. It involves systematic lifestyle change.

Third, little is known about the match of an exercise with individuals' particular presenting problems, goals, or demographic characteristics (e.g., age, gender, social class, ethnicity). These exercises may not be equally useful for everybody, and they should not be considered as one-size-fits-all.

Fourth, all interventions run the risk of unintended harm. While positive psychologists tend to think that their techniques avoid iatrogenic effects, there are no empirical bases for this assertion. For example, although optimism is related to mental and physical health, it is simplistic to think that if clients think optimistically about everything that their problems will magically go away. What happens when the magic fails to occur? Clients may blame themselves, assuming too much responsibility for their well-being. Positive psychology interventions should be used to complement existing therapeutic strategies, not replace them. It requires caution and

sound professional judgment when, to whom, and how it would be used in practice.

Starting to appear are intervention strategies sometimes labeled as *positive psychotherapy* (e.g., Seligman, Rashid, & Parks, 2006). If this label simply means that the goal of therapy is not just symptom reduction or relief but also the enhancement of quality of life by building strengths and assets, then it makes sense. However, there is a danger in the label because it may give misleading impression that an altogether different approach to treatment has been created. Almost all treatments labeled as positive psychotherapy are derived from well-established cognitive-behavioral approaches. I prefer to describe these interventions as *informed* by positive psychology and to stress the continuity between them and existing approaches, and the lessons that have been learned from them.

Conclusion

Positive psychology is interested in promoting optimal lifelong development for *all*. Evidence is accumulating that positive constructs such as positive emotions, good relationships, meaning and purpose, character strengths, and services for others all play important roles in health and well-being, not only as broad-protective factors, preventing or mitigating pathology and problems, but also as enabling conditions that promote thriving and flourishing life. Positive psychology goes beyond a focus on problems and their absence to reflect healthy development. Positive psychology focuses on identifying and capitalizing strengths and capacities.

Life is full of challenges, stresses and risks, both major and minor. No one goes through life without exposure to adversity. But all of us also have strengths and assets, and if we can use these to our advantage—especially in difficult times—we will not only survive, but thrive.

The ultimate goal of life is not merely surviving in the face of adversity but flourishing and thriving. Everyone deserves to live a happy, healthy and fulfilling life. The good life is

possible for all but requires the right strategies and hard work. Positive psychology provides a valuable perspective for building and maintaining the good life by expanding our view of psychological health beyond the absence of problems and by providing strategies for prevention, intervention, and promotion.

<div align="center">References</div>

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59,* 20-28.

Bonanno, G. A., Galea, S., Bucciareli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology, 75,* 671-682.

Breslau, N., Chilcoat, H. D., Kessler, R. C., & Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: Results from the Detroit Area Survey of Trauma. *American Journal of Psychiatry, 156,* 902–907.

Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science, 14,* 320-327.

Bryant, F. B., & Veroff, J. (2006). *The process of savoring: A new model of positive experience.* Mahwah, NJ: Lawrence Erlbaum.

Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior.* New York: Springer-Verlag.

Coyne, J.C., & Tennen, H. (2009). Positive psychology in cancer care: Bad science, exaggerated claims, and unproven medicine. *Annals of Behavior Medicine*, 39, 14-26.

Diener, E. (2000). Subjective well-being: The science of happiness, and a proposal for a national

index. *American Psychologist*, *55*, 34-43.

Diener, E. (2008). Myths in the science of happiness, directions and for future research. In M.

    Eid & R. J. Larsen (Eds.), *The science of subjective well-being* (pp. 403-514). New York:

    Guilford.

Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not the intensity, of

    positive versus negative affect. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective*

    well-being: An interdisciplinary perspective (pp. 119-139). New York: Pergamon.

Ehrenreich, B. (2009). *Bright-sided: How the relentless promotion of positive thinking has*

    undermined America. New York: Metropolitan Books.

Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An

    Experimental investigation of gratitude and subjective well-being in daily life. *Journal of*

    Personality and Social Psychology, 84, 377–389.

Felsman, J. K., & Vaillant, G. E. (1987). Resilient children as adults: a forty year study. In

    Anthony E. J. & Cohler B. J. (Eds.), *Invulnerable Child* (pp. 289-314). New York,

    Guilford Press.

Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (Eds.) (2009). *Effective treatments for*

    PTSD: Practice guidelines from the International Society for Traumatic Stress Studies

    (2nd ed.). New York: Guilford Press.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-

    and-build theory of positive emotions. *American Psychologist, 56,* 218-226.

Fredrickson, B. L., & Losada, M. (2005). Positive affect and the complex dynamics of human

    flourishing. *American Psychologist, 60,* 678-686

Fredrickson, B. L., Tugade, M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive

emotions in crises? A prospective study of resilience and emotions following the terrorist

attacks on the United States on September 11th, 2001. *Journal of Personality and*

SocialPsychology, 84, 365–376.

Frankl, V. E. (2006). *Man's search for meaning: An introduction to logotherapy.* Boston:

Beacon.

Froh, J. J., Bono, G., & Emmons, R. (2010). Being grateful is beyond good manners: Gratitude

and motivation to contribute to society among early adolescents. *Motivation and*

Emotion, 34, 144-157.

Furr, R. M., & funder, D. C. (1998). A multimodal analysis of personal negativity. *Journal of*

Personality and Social Psychology, 74, 1580-1591.

Gable, S. L., Reis, H. T., Impett, E. A., & Asher, E. R. (2004). What do you do when things go

right? The intrapersonal and interpersonal benefits of sharing positive events. *Journal of*

Personality and Social Psychology, 87, 228-245.

Gillham, J. E., Reivich, K. J., Jaycox, L. H., & Seligman, M. E. P. (1995). Prevention of

depressive symptoms in schoolchildren: Two-year follow-up. *Psychological Science, 6,*

343-351.

Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and

stability from newlywed interactions. *Journal of Marriage and the Family*, 60, 5-22.

Greenspoon, P. J., & Saklofske, D., H. (2001). Toward an integration of subjective well-being

and psychopathology. *Social Indicators Research, 54,* 81-108.

Lyubomirsky, S., King, L. A., & Diener, E. (2005). The benefits of frequent positive affect: Does

happiness lead to success? *Psychological Bulletin, 131,* 803-855.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American*

Psychologist, 56, 227–238.

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2007). Longitudinal assessment of mental

health problems among active and reserve component Soldiers returning from the Iraq

war. *Journal of American Medical Association, 298,* 2141-2148.

Otake, K., Shimai, S., Tanaka-Matsumi, J., Otsui, K., & Fredrickson, B.L. (2006). Happy people

become happier through kindness: A counting kindnesses intervention. *Journal of*

Happiness Studies, 7, 361–375.

Park, N. (2004). The role of subjective well-being in positive youth development. *The Annals of*

the American Academy of Political and Social Science, 591, 25-39. (a)

Park, N. (2004). Character strengths and positive youth development. *The Annals of the*

American Academy of Political and Social Science, 591, 40-54. (b)

Park, N. (2011). Military children and families: Strengths and challenges during peace and war.

American Psychologist, 66, 65-72.

Park, N., Park, M., & Peterson, C. (2010). When is the search for meaning related to life

satisfaction? *Applied Psychology: Health and Well-Being, 2,* 1-13.

Park, N., & Peterson, C. (2003). Virtues and organizations. In K. S. Cameron, J. E. Dutton, & R.

E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline*

(pp. 33-47). San Francisco: Berrett-Koehler.

Park, N., & Peterson, C. (2006). Character strengths and happiness among young children:

Content Analysis of parental descriptions. *Journal of Happiness Studies, 7*, 323–341. (a)

Park, N., & Peterson, C. (2006). Moral competence and character strengths among adolescents:

The development and validation of the Values in Action Inventory of Strengths for Youth.

Journal of Adolescence, 29, 891–910. (b)

Park, N., & Peterson, C. (2006). Methodological issues in positive psychology and the

    assessment of character strengths. In A. D. Ong & M. van Dulmen (Eds.), *Handbook of*

    methods in positive psychology (pp. 292-305). New York: Oxford University Press. (c)

Park, N., & Peterson, C. (2008). Positive psychology and character strengths: Its application for

    strength-based school counseling. *Journal of Professional School Counseling, 12,* 85-92.

Park, N., & Peterson, C. (2009). Achieving and sustaining a good life. *Perspectives on*

    Psychological Science, 4, 422-428.

Park, N., & Peterson, C., (2010). Does it matter where we live? Toward an urban psychology of

    Character Strengths. *American Psychologist, 65*, 535-547.

Peterson, C., Park, N., & Castro, C. (2011). Assessment for the U.S. Army Comprehensive

    Soldier Fitness Program: The global assessment tool. *American Psychologist, 66,* 10-18.

Park, N., Peterson, C., & Seligman, M. E. P. (2004). Character strengths and well-being. *Journal*

    of Social and Clinical Psychology, 23, 603-619.

Park, N., & Peterson, C., & Seligman, M.E.P. (2006). Character strengths in fifty-four nations

    and the fifty US states. *Journal of Positive Psychology, 1,* 118-129.

Peterson, C. (2000). The future of optimism. *American Psychologist, 55,* 44-55. Peterson, C.

    (2006). *A primer in positive psychology.* New York: Oxford University Press.

Peterson, C., Bishop, M. P., Fletcher, C. W., Kaplan, M. R., Yesko, E. S., Moon, C. H., Smith, J.

    S., Michaels, C. E., & Michaels, A. J. (2001). Explanatory style as a risk factor for

    traumatic mishaps. *Cognitive Therapy and Research, 25,* 633-649.

Peterson, C., & Park, N. (2003). Positive psychology as the evenhanded positive psychologist

    views it. *Psychological Inquiry, 14,* 141-146.

Peterson, C., & Park, N. (2009). Classifying and measuring strengths of character. In S. J. Lopez

& C. R. Snyder (Eds.), *Oxford Handbook of positive psychology* (2nd ed., pp. 25-33.) New York: Oxford University Press.

Peterson, C., Park, N., Hall, N., & Seligman, M. E. P. (2009). Zest and work. *Journal of Organizational Behavior, 30,* 161-172.

Peterson, C., Park, N., Pole, N., D'Andrea, W., & Seligman, M. E. P. (2008). Strengths of character and posttraumatic growth. *Journal of Traumatic Stress, 21,* 214-217.

Peterson, C., Park, N., & Seligman, M. E. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies, 6,* 25-41.

Peterson, C., Park, N., & Seligman, M. E. P. (2006). Greater strengths of character and recovery from illness. *Journal of Positive Psychology, 1,* 17-26.

Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review, 91,* 347-374.

Peterson, C., & Seligman, M. E. P. (2003). Character strengths before and after September 11. *Psychological Science, 14,* 381-384.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A classification and handbook.* Washington, DC: American Psychological Association/New York: Oxford University Press.

Post, S. G. (2005). Altruism, happiness, and health: It's good to be good International *Journal of Behavioral Medicine, 12,* 66-77.

Saleebey, D. (Ed.) (1992). *The strengths perspective in social work practice*. New York: Longman.

Schwartz, C. E., & Sendor, R. M. (2009). Helping others helps oneself: Response shift effects in peer support. *Journal of Personality, 77,* 139-175.

Scott, D. J., Stohler, C. S., Egnatuk, C. M., Wang, H., Koeppe, R. A., & Zubieta, J. (2007). Individual differences in reward responding explain placebo-induced expectations and effects. *Neuron, 55,* 325-336.

Seal, K.H., Bertenthal, D., Miner, C. R., Saunak, S., & Marmar, C. (2007). Bringing the war back home. *Archives of Internal Medicine, 167,* 476-482.

Seligman, M. E. P., Castellon, C., Cacciola, J., Schulman, P., Luborsky, L., Ollove, M., & Downing, R. (1988). Explanatory style change during cognitive therapy for unipolar depression. *Journal of Abnormal Psychology, 97,* 13-18.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5-14.

Seligman, M. E. P., Rashid, T., & Parks, A. C. (2006). Positive psychotherapy. *American Psychologist, 61,* 774-788.

Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist, 60,* 410-421.

Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The Journal of Positive Psychology, 1,* 73-82.

Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology, 65,* 467-487.

Snyder, C. R. (Ed.) (2000). *Handbook of hope: Theory, measures, and applications.* San Diego: Academic Press.

Steger, M. F., Frazier, P., & Oishi, S. (2006). The Meaning in Life Questionnaire: Assessing the

presence of and search for meaning in life. *Journal of Counseling Psychology, 53,* 80-93.

Taylor, S. E., Kemeny, M. E. Reed, G. M., Bower, J. E., & Gruenewald, T. L. (2000).
Psychological Resources, Positive Illusions, and Health. *American Psychologist*, *55*, 99-109.

Tedeschi, R. G., & Calhoun, L.G. (1995). Trauma and Transformation: Growing in the
Aftermath of Suffering. Thousand Oaks, CA: Sage.

Van der Kolk, B. A., McFarlane, A. C., & Weisaeth, L. (Eds.) (1996). *Traumatic stress: The effects of overwhelming experience on mind, body, and society*. New York: Guilford Press.

Waterman, A.S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness
(eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology, 64,* 678–691.

Zimmerman, M., Clincher, J. B., Pasternak, M.A., Friedman, M., Attila, N., & Codrescu, D.
(2006). How should remission from depression be defined? The depressed patient's perspective. *American Journal of Psychiatry, 163,* 148-150.